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OF THE

Jamaica Agricultural Society.

INDEX

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THE JOURNAL

OF THE

Jamaica Agricultural Society.

The more people do the more they can do; he who does nothing renders himself incapable of doing anything; while we are executing one work we are preparing ourselves for undertaking another.

Vol. XXXVIII. JANUARY, 1934 No. 1.

BOARD OT MANAGEMENT.

The regular monthly meeting of the Board of Management of the Jamaica Agricultural Society was held at the office of the Society, 11 North Parade, Kingston, on Wednesday the 6th December, 1933, at 11.30 a.m. There were present: Mr. A. C. Barnes, Director of Agriculture (*ex officio*), Messrs. H. E. Lewis, T. P. V. McDaniel, U. Theo. McKay, Major G. B. Pease, Messrs. D. D. Phillips, S. M. Walker, W. Harper Watson and T. R. Williams; P. St. L. Bacquie and L. L. Carringron, Supervisors of Instructors and the Secretary, Glaister Baxter.

The Secretary requested that as there was no Vice-President present a Chairman be elected. On the motion of Mr. U. Theo. McKay seconded by Mr. Phillips, Mr. T. R. Williams was voted to the chair.

Apologies for Absenece.

Apologies for absence were submitted from Mr. C. O. Cover and the Hon. T. J. Cawley, the latter having to attend a meeting of the Coconut Producers Association.

Confirmation of Minutes of the previous Meeting.

The Secretary stated that the minutes had been circulated and said before confirmation he would like a letter received from Mr. C. O. Cover with regard to the minutes, to be read.

The letter was read and the Board decided that the minutes be accepted as they were.

It was moved by the Director of Agriculture, seconded by Mr. McDaniel that the minutes be confirmed. This was carried.

Matters arising out of the previous Minutes.

(a) *Estimates: (i) Letter from First Vice-President.*—The following letter was read:—

November, 28th 1933.

Gentlemen,

I was invited by the Hon. Colonial Secretary to discuss with him the Estimates of the Jamaica Agricultural Society, and as a result he assured me that he was prepared to recommend to the Government a subvention of £10,000 for the next financial year, and also a subvention of £500 for the Bee Keeping Industry.

This amount represents £500 less on the general subvention and a cancellation of the Prize Holdings Competition expenditure of £250: Total £750.

I discussed with the Hon. Colonial Secretary the question of increments to the higher rades of Instructors and, whilst he was not definite on the matter, it leaves me to suggest,

as the only alternative for making the subvention quadrate with our expenditure, that the increments budgeted for First and Second Class Instructors, amounting to £140, and also the item Agricultural Headmen, amounting to £180, total £320, be disallowed on the Estimates. This would leave us with an amount of £180 to find to balance our budget, which I suggest can be appropriated from the sum of £373 7s. 8d. estimated as remaining available on the 31st March, 1933.

(Sgd.) T. J. CAWLEY,
First Vice-President.

(*ii*) *Letter from C. S. O. re Deputation.*—The following letter from the C. S. O. was presented:—

No. 6155/33 4th December, 1933.

In reply to your letter dated 10th November and with reference to my interview on the 29th November with the Vice-President and yourself, I am directed by the Governor to inform you that he has now had an opportunity of considering the Estimates and will be glad to see the deputation such as is suggested. on Friday morning, December 8th at 9.30 o'clock at King's House.

2. His Excellency hopes that this time and date will be convenient.

(Sgd.) A. S. JELF,
Colonial Secretary.

The Secretary stated that the members of the deputation were being informed that day.

(b) *Seed Relief in Storm Damaged Areas: Letters*—(*i*) *From C.S.O. re Grant of* £500.—Letter dated 2nd November from the C.S.O. was read as follows:—

"As I informed you at our interview this morning, I am directed by the Governor to say that he authorises the Society to expend a sum not exceeding £500 in the purchase of seeds for distribution in the Western Parishes, and the Governor feels sure that you will take immediate action to this end.

2. His Excellency will be glad to receive as soon as possible any details of the damage to crops caused by the hurricane that your Society may be able to furnish, and he will of course like to have in due course a statement showing the distribution of the money authorised for the purchase of seeds.

(Sgd.) A. S. JELF,
Colonial Secretary.

(*ii*) *Letter from C.S.O. re free freight on the Railway.*—Letter from the C.S.O. No. 5850/33 dated 11th November, 1933, was read stating that the Director of the Railway had been authorised to accept free of charge shipments of seed for free distribution in the western parishes sent forward by the Society.

(*iii*) *Correspondence with C.S.O.*—Correspondence between the Secretary, the First Vice-President and the C.S.O. with reference to conflicting reports of the storm damage and the necessity for a free distribution of seeds was read.

Subsequent letters from the C.S.O. No. 5850/33 of date 1st December and 5850/33 of date 4th December, authorising finally distribution of seed were read.

The Secretary stated that the distribution had actually started. He also stated that the total amount of seed requisitioned was £1,642 and that he had pruned down these requisitions and allocated the following amounts to the various parishes:—St. Elizabeth £150, Westmoreland £120, Manchester £25, St. Ann £5, Trelawny £17, St. James £26 and Hanover £160, totalling £503.

Some discussion ensued as to the distribution of the seeds and the Secretary was instructed to read extracts of Instructors' reports and report by Supervisor Bacquie on the storm situation.

This was done.

Mr. McDaniel then moved that the Secretary proceed with the distribution of the seeds, and Mr. Harper Watson seconded this.

Mr. McKay moved as an amendment that the allotment for Hanover be £100 instead of £160. This was not seconded.

Mr. McDaniel moved as a further amendment that a small Committee be appointed to go into the matter right away with the Secretary and Supervisors in respect to the apportionment.

This was not seconded.

The substantive motion was then put to the vote and carried.

(*iv*) *Bee Instructor's Report re Apiaries and letter from Beekeepers.*—The Secretary read Bee Instructor's report of the damage to apiaries in the Island, and a petition from the Beekeepers.

After discussion it was decided that no question of relief could be considered.

(c) *Replies to Mr. Cover's questions re Small Stock.*—The Secretary stated that the following were the replies to the questions asked by Mr. Cover at the last meeting, with reference to Society's small stock sires at Grove Place.

The cost is 1/6d. per week for each animal after six weeks old and they are grain fed.

They will possibly be kept on the Farm until they are nine months (39 weeks) which will be 33 weeks maintenance at 1/6d. equals 49/6d. each.

(d) *Report from Supervisor re Coffee Competition* (*Princessfield Branch*). The Secretary read Supervisor Carrington's report with regard to the Princessfield Branch Coffee Competition.

The Board authorised the Secretary to pay an amount of One Guinea toward the Competition on condition that the Branch raised not less than a similar amount.

(e) *Secretary's Statement.*—The Secretary made the following statement:—

Gentlemen,

As arising from the Minutes, I beg to report that through pressure of work it has not been found convenient during the month to convene a meeting of the Committee appointed for the revision of the Rules and Bye-Laws of the Society.

The Legislative Council Committee in connection with the Live Stock Industry was communicated with in the terms of the instructions of the Board.

The Honourable the Colonaial Secretary was communicated with in regard to the Tobacco Industry as instructed by the Board.

(Sgd.) Glaister Baxter,
Secretary,

Statement of Accounts.

(a) *Statement for October.*—Statement of accounts for October returned from circulation was placed on the table.

(b) *Statement for November.*—Statement for November was placed on the table and the Secretary was instructed to circularise.

On the suggestion of Mr. McKay it was agreed that in future the statement of accounts should be sent to members along with the Agenda for the subsequent meeting of the Board.

Questions.

Mr. Harper Watson asked if nothing further could be done by the Society to aid the widow of the late Mr. John Barclay, O.B.E., former Secretary of the Society and that if the Society could vote some financial relief, say even to the extent of £100.

Some discussion ensued and the Chairman said that the proposal that Mrs. Barclay be granted a compassionate allowance by the Society should best come before them in the form of a resolution after due notice had been given.

Mr. Watson then handed in notice of motion for the next meeting as under:—

"That a compassionate allowance of £100 be voted for the widow of the late John Barclay, O.B.E., former Secretary of the Jamaica Agricultural Society, from the funds of this Society."

Mr. McKay handed in the following notice of motion for the next meeting:—

"That the Board of Management take the necessary steps to make investigations of the possibilities of the extension of the farming of sugar cane to be disposed of to the factories."

Mr. McKay then moved, seconded by Mr. McDaniel, that the standing orders be suspended to enable that part of the report of the proceedings of the Instructors Committee meeting held that morning relating to the retirement of Instructors to be dealt with.

This was carried.

The Secretary then read the following report:—

"Your Instructors Committee as the result of their deliberations this morning beg to recommend the retirement of Instructors J. A. Banks and W. Z. Buckley on account of age."

Some discussion ensued and Mr. McKay moved, seconded by Mr. McDaniel, that the report of the Instructors Committee be adopted and that the Instructors named be given the usual notice to retire on the 31st March, 1934.

This was carried.

The Board then adjourned for one hour.

The Board resumed at 2.15 p.m., and there were present:—Mr. T. R. Williams again presiding, Mr. A. C. Barnes, Director of Agriculture, Messrs. H. E. Lewis, T. P. V. McDaniel, U. Theo. McKay, Major G. B. Pease, Messrs. D. D. Phillips, S. M. Walker, and W. Harper Watson; the two Supervisors of Instructors and the Secretary.

Correspondence.

(a) *Letter from C.S.O. re depot for handling crops.*—Letter No. 7799/33 dated 23rd November, 1933, from the C.S.O., was read as follows:—

"On the 19th of January, 1927, a letter was sent to you from this office asking to be favoured with the remarks and recommendations of your Society in regard to the suggestion of the establishment of a Depot in Kingston where articles could be stored and handled in the interests of growers and manufacturers in the country. This referred particularly to potatoes. Your Society was good enough to reply on the 22nd that you did not think that such an enterprise could be handled at the office of the Society, under the present arrangements, and that it should be the work of the Producers Association. A letter was written to the Producers Association in February, 1927, but elicited no reply.

"The matter has now been raised in the Legislative Council by the Hon. Member for St. Ann and the Governor would be glad if the Board of Management would examine the question *de novo*. It would appear that there are large quantities of potatoes grown in the country, but that as there is no centre for their disposal, they rot before they can be sold. The writer will be glad to discuss with the Vice-President and/or any of the Board of Management who happen to be particularly interested, the feasibility of such a proposition."

(Sgd.) A. S. Jelf,

In reply to the Chairman the Secretary said that the present method of marketing small crops tended to disorderly marketing, and that there was a resolution on the Agenda to be moved by the Hon. Mr. Sangster on the same matter.

The Board decided that the resolution should be brought forward.

Mr. McKay then moved on behalf of Mr. Sangster as follows:—

"Resolved that in view of the desirability of storage for crops such as grains, Irish potatoes, etc., being provided so as to permit of their more orderly marketing which would assure greater returns to the producers, that this Board of Management approve the principle and appoint a Committee (personnel to be decided by the Board) three to form a quorum, to investigate the possibilities of this Society undertaking such service and to formulate a scheme for providing such storage and financing necessary for the marketing of such crops, such scheme to be submitted to Government."

The Director of Agriculture suggested the addition of the word

"curing" after the words "such storage" as he felt that Mr. Sangster would accept this additional word to the resolution.

This was agreed to.

It was subsequently moved by Mr. McKay and seconded by the Director of Agriculture that a Committee consisting of the Hons. T. J. Cawley and P. W. Sangster and the Secretary should interview the Colonial Secretary on the matter, and that the Staple and Minor Products Committee should deal with Mr. Sangster's motion which had been adopted by the Board, and formulate a plan.

Both motions were unanimously carried.

(b) *Letter from Agricultural Society of Trinidad and Tobago.*—Letter from the Agricultural Society of Trinidad and Tobago sympathising with the Colony for the recent storm damage was read by the Secretary

The Secretary stated that he had already written a letter of thanks which was noted.

(c) *Letter from Messrs. Mutual Brokers, Montreal, Ltd.*—Letter from Messrs. Mutual Brokers, Montreal, Ltd., advising that in their opinion the article of the Canada-West India Treaty regarding preference to citrus had been either overlooked or violated by the Canadian Government.

After discussion on Mr. McDaniel's suggestion the Secretary was directed to send this communication to the Colonial Secretary without making any comment on it.

(d) *Letter from Mr. R. A. Hay.*—Letter from Mr. R. A. Hay was read asking the Society for credit for queen bees.

Mr. McKay said it would be bad precedent.

Major Pease moved that the opinion of the Bee Instructor should be obtained in the matter and that the application should be deferred unti until this was received.

This was seconded by Mr. Lewis, put to the vote and carried.

Half-Yearly General Meeting—Arrangements.—The Secretary stated that the Half-Yearly General Meeting of the Society was scheduled to be held on Thursday, 11th January, 1934 at the Collegiate Hall at 10 a.m. The Board approved.

Instructors.

(a) *Report of November meeting of Committee.*—The following report from the Instructors Committee was submitted:—

Your Instructors' Committee met at 10 a.m. on Wednesday, 1st November, 193 and considered their Agenda.

They recommend the adoption of the Director of Agriculture's comments to the effec that all paragraphs of Instructors' and Supervisors' reports be numbered.

They decided to cancel the leave of absence to all the Field Officers on leave and ordere their immediate return to work consequent on the storm.

Application for affiliation consequent on the resuscitation of the Main Ridge Branc in Clarendon was approved and is recommended.

The Board adopted this report unanimously.

Diseases of Plants and Animals: Insect Pests.

(a) *Panama Disease of Bananas:*—The Secretary laid on the tabl reports on the Panama Disease of Bananas for the months of Septem ber and October and advised the Board that copies had been sent ou to individual members of the Board.

West Indian Fruit and Vegetable Conference—Report.

The Secretary stated that the report of the proceedings of the Wes Indian Fruit and Vegetable Conference had not yet completed it circulation to the members of the Board.

After discussion it was decided that the matter be deferred until circulation was completed.

Provident Scheme.

The Secretary stated that reference to the Provident Scheme was only placed on the Agenda to inform the Board that a scheme had been arranged and was in circulation to the members of the Special Committee appointed on the matter.

Beekeeping.

The Secretary stated that the Bee Instructor's report for October was in circulation to the members of the Bee Industry Committee.

The Director of Agriculture said that arising from the Beekeeping matters he had been asked by the Canadian Trade Commissioner in Kingston to make enquiries in reference to the prohibition against the transhipment of refined honey and refined bees' wax at the port of Kingston. The idea was to enquire if some arrangements could be made to allow honey produced in Canada to be transhipped at Kingston for British Honduras. He was making enquiries regarding the existence of bee diseases in Canada, and he would be glad if any member of the Board had comments to offer on this subject as it would help him and he would like to discuss the matter with this Board before any alterations in the existing regulations were made.

At this stage the Chairman said he had to leave, and Mr. McDaniel was voted to the chair.

Branches, Resolutions, etc.

(a) *Letter from Inspector General re Testing of Scales.*—The Board discussed the letter from the Inspector General of Police which stated the arrangements that could be made in regard to the testing of scales at different Police Stations. It was felt that the Police were misinterpreting their instructions in the matter and the Secretary was directed to write to the Inspector General on the subject.

(b) *Letter from Banana Industry Aid Board re loans.*—A letter was read from the Banana Industry Aid Board stating that they had passed a resolution extending the period for the first payments of loans to the 1st of April, 1934, and the date for the final repayments to the 1st of April, 1935, but that payments in the interim could be made at any time prior to these dates.

The letter was discussed and the Board directed the Secretary to write to the Banana Industry Aid Board that the decision contained in their letter having been made prior to the last storm that the date for first repayments of these loans be further extended to the 1st of September, 1934.

(c) *Resolution from Mt. Horeb Branch re extension of time for payments on land settlements* was placed before the Board and the Secretary was directed to forward it to the C.S.O.

(d) *Resolution from the Middle Quarters Branch expressing appreciation of the Governor's prompt action re Seed Relief* was placed before the Board and the Secretary was directed to forward the resolution to His Excellency the Governor.

(e) *Green Island re Distribution of seeds (Relief).*—A resolution was presented from the Green Island Branch asking that the Agricultural Instructors make the seed distribution instead of the organisations proposed.

The Board decided that no action should be taken on this resolution.

(f) *Resolution from Darliston asking for loans* was placed before the Board.

The Board directed that they be advised that application should be made to the Banana Industry Aid Board.

(g) *A letter and resolution from the Hanover Windward Branch regarding roads and relief work* were placed before the Board.

The Board directed the Secretary to deal with the matter.

(h) *Resolution from the Grange Hill Branch with regard to a Resident Magistrate's Court* at Grange Hill was submitted.

The Secretary was directed to forward this resolution to the Attorney General.

Resolution from the Clarendon Branches Associated were presented as follows:—

(*h*) *re Treatment of Panama Disease.*
(*i*) *re Streaking of Roads.*
(*j*) *re Mid-Clarendon plains and citrus industry.*
(*k*) *re Control of Insect Pests.*
(*l*) *re Postal facilities for Mocho.*
(*m*) *re Treatment of Yaws.*

Regarding (h) which suggested that small land owners be employed on their own holdings in the treatment of Panama Disease the Board decided that they would not adopt this resolution.

With regard to the Streaking of roads the Secretary was directed to forward the resolution to the Hon. Director of Public Works.

With regard to resolution (j) asking for instructoral services for the establishment of citrus industry in Mid-Clarendon, on the proposal of the Director of Agriculture it was decided to refer this matter to the Supervisor of Instructors for the division for him to make suggestions as to how the district may be improved agriculturally.

Resolution praying that insecticides be provided free or at a nominal cost was considered.

The Secretary was instructed to obtain further particulars on this matter.

Resolution regarding the inadequacy of the postal facilities at Mocho was considered and the Secretary was directed to forward it to the Postmaster for Jamaica.

Resolution with reference to the treatment of yaws was considered and the Secretary was instructed to send copies of this resolution to the Superintending Medical Officer and the C.S.O. and to request an article for the Journal on the matter from the Superintending Medical Officer.

Resolutions from the St. Thomas Associated Branches were submitted as follows:—

(*o*) *re Appointment of additional Sanitary Inspector.*
(*p*) *re Covers for coppers in Boiling Houses.*
(*q*) *re Water Supply for Nutts River.*
(*r*) *re Sour Orange Seedlings.*

With regard to the appointment of an additional Sanitary Officer the Secretary was directed to forward this resolution to the Parochial Board of the parish.

Resolution suggesting better protection for utensils used for the boiling of wet sugar was tabled.

Resolution regarding water supply for Nutts River was considered and the Secretary was directed to forward this to the Parochial Board for the parish.

With regard to the resolution asking for the establishment of nurseries

of Seville orange seedlings at Bath for distribution at 1/- per hundred it was decided to write to the Branch that these could be obtained from Mr. D. D. Phillips of Williamsfield at the same price.

(s) *Invitation from the Manchester Branches Associated* to their Half-Yearly meeting to be held on the 9th December, was placed before the Board.

The Secretary obtained the permission of the Board to attend this meeting.

New Members.

It was moved by Mr. Walker seconded by Mr. McKay and unanimously carried that the following be elected members of the Society:

J. Vassal Thomson, Ballyhooly, Mandeville.

Isley Turton, 7 Oliver Lane, Rollington Pen, Windward Road P.O.

Dr. L. A. Gibb, Port Antonio.

E. A. McNeil, Troja.

Other Business.

(a) Resolution was presented from the *Mile Gully Branch asking that Bitter Damsel wood be placed on the protected list.*

The Secretary stated that he had communicated with the Management of the local match factory in regard to this matter and had been informed that they were using between 35 and 40 tons of it per week in the manufacture of matches.

The Secretary was instructed to apply to the Government asking that the Bitter Damsel wood be placed on the protected list under Law 4 of 1909 relating to Praedial Larceny, giving the reasons for the request, as the wood is now becoming an important commercial article.

(b) Letter from Mr. J. C. Sangster asking for Queen Bees at reduced price was considered and the Secretary was instructed to refer this matter to the Bee Instructor for his comments.

(c) Letter from Manchester Parochial Board asking for free seeds for the Poor House was considered.

After discussion Mr. Lewis moved that the sum of One Pound be allocated for the purpose.

This was seconded by Mr. Walker.

After further discussion Mr. Lewis amended his motion with the permission of the seconder to read '10/-" instead of One Pound.

This was carried on division, Mr. McKay dissenting.

(d) Letter was read from the Jamaica Permanent Exhibitions' Society asking that Mr. Lynch be one of their judges at the Exhibition in February next which would require about three days.

After discussion the request was granted on condition that there was no cost to the Society.

(e) Letter from the Jamaica Permanent Exhibitions Society asking to be hired Show Equipment, was submitted.

The Board agreed that these should be made available on the usual terms.

(f) *Letter from Supervisor re Goat for Turnberry Branch.*—Letter from Supervisor Carrington recommending subsidy for a goat for the Turnberry Branch was submitted.

The Board authorised the usual subsidy under the rules.

(g) *Letter from C.S.O. re amounts paid for travelling to Board Members.*—The Secretary stated that the C.S.O. had written asking for information regarding expenditure for travelling paid to members of the Board of Management of this Society for the years 1931-32, 1932-33 and 1933-

34. He had replied that no expenditure whatever had been incurred under this heading.

The Hon. T. J. Cawley came in and took the chair.

(h) and (l) Resolutions from the Gordon Town Branch and from the Associated Branches of St. Andrew praying for a supply of free seeds were presented.

It was decided that this should be brought to the attention of the Colonial Secretary.

(i) Resolution from Springfield Branch (St. James) asking for prompt distribution of seeds was presented and tabled.

(j) and (k) Letter from Supervisor Carrington re Flood damage in Mr. McLaren's district and communication from Yallahs Branch re Seed Relief were both considered and the Secretary was instructed to forward copies of these communications to the Colonial Secretary.

The meeting then adjourned to Wednesday, January, 3rd at 11.30 a.m.

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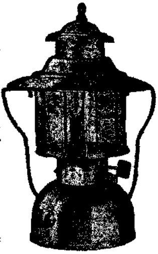

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SULPHATE OF AMMONIA vs. NITRATE OF SODA.

By H. H. Croucher, B.Sc.,

Agricultural Chemist, Department of Science and Agriculture.

The element nitrogen may be applied to the soil as artficial or inorganic manure in two main forms, namely, in the form of ammonia, and the form of nitrate. The nitrogen of sulphate of ammonia is in the ammoniacal form, that of nitrate of soda is in the nitrate form. With few exceptions all inorganic nitrogenous manures contain their nitrogen in one of those two forms. Ammophos and Niciphos contain their nitrogen as ammonia, nitrate of potash contains nitrogen as nitrate, while nitro chalk contains part of the nitrogen in the form of ammonia, and part in the form of nitrate.

Nitrate of soda was one of the first nitrogenous inorganic manures to be used. It was obtained from large natural deposits in Chile and rapidly earned a reputation as a valuable type of artificial manure. Certain quantities of sulphate of ammonia were obtained as waste products from gas works, but owing to the somewhat limited supply and to certain undesirable characteristics, such as free acidity, possessed by the manure prepared in this way, it did not usurp the established position of nitrate of soda. In recent years modern chemical methods have enabled sulphate of ammonia to be manufactured in large quantities from the nitrogen of the air. The sulphate of ammonia prepared by this process is free from the undesirable characteristics of the older material. Nitrate of soda can also be manufactured by a modification of this new process, and both forms of nitrogen can be obtained on the market to-day.

Both forms of nitrogen produce ultimately much the same effect on the growing crop, and both types have their adherents among planters. Conditions are such, however, that sulphate of ammonia can be sold at a much cheaper rate than either the manufactured nitrate of soda or the natural product from Chile. It is of value therefore at the present time, when the use of artificial manures is rapidly increasing in Jamaica, to review the respective merits of these two types of nitrogenous manure.

It is believed that most plants require the majority of the nitrogen which they absorb from the soil to be in the form of nitrate. With few exceptions plants have difficulty in absorbing nitrogen in the form of ammonia. Artificial nitrogen applied to the soil in the form of nitrate is therefore in a form immediately available to the plant.

Nitrogen in the form of ammonia, when applied to the soil is transformed to nitrate nitrogen before plants can use it fully. The transformation is performed by minute living organisms or bacteria which exist in the soil. The speed of the transformation process depends chiefly on the temperature, the reaction or acidity, and the state of cultivation of the soil. Generally a few weeks elapse before sufficient nitrate has accumulated to produce an appreciable effect on the plant. Ammonia nitrogen is consequently somewhat slower in action than nitrate nitrogen.

A second point of difference in the behaviour of the two types of nitrogen is that whereas nitrate nitrogen is not held by the soil and is easily washed out, ammonia nitrogen is retained by the soil and is only washed out with difficulty. If heavy rain is experienced immediately after the application of nitrate of soda a large proportion of the nitrogen, will be removed in the drainage water, particularly if the soil is [illegible]

very dry. If sulphate of ammonia has been applied prior to the rain, only that fraction of the nitrogen which has been already converted to nitrate nitrogen will be removed, the ammonia nitrogen being held in the soil.

The combined effect of its slower action and of its retention by the soil is to enable ammonia nitrogen to form a reservoir of nitrogen in the soil which is released to the plant slowly and in relatively small amounts. Nitrate nitrogen will produce a rapid flush of growth in the plant, but is soon exhausted.

It has been suggested that repeated application to the soil of ammonia nitrogen and sulphate of ammonia in particular, tends to produce an undesirable acidity in the soil. Nitrate of soda tends to make the soil alkaline, and may eventually increase the stickiness of very heavy soils

An experiment to test these various effects has recently been concluded at Cornell Agricultural Experiment Station (T. L. Lyon and J. A. Bizzell, Journal of Agricultural Research, Volume 47, p. 52). The experiment was conducted over a period of ten years. About 3½ tons of soil were placed in each of six tanks. Crops were grown in the tanks. Sulphate of ammonia was applied regularly to the soil in some of the tanks, and nitrate of soda was applied regularly to the soil in the remaining tanks. Various determinations were made on the soil and the drainage water coming from the tanks at intervals throughout the ten years.

The following results were obtained:—

(1) The weight of crops obtained from the soils treated with Nitrate of Soda was greater than the weight of crops obtained from the soils treated with sulphate of ammonia.

(2) An application of lime was made to the soils at the beginning of the experiment. All the soils tended to become acid, and additional lime was added after four years. After four years the soil receiving sulphate of ammonia became much more acid than that receiving nitrate of soda. Eventually it was found necessary in order to maintain the soil at neutrality to add the equivalent of 8 tons per acre of ground limestone to the soils receiving sulphate of ammonia, while only 3 tons per acre were necessary for the soils receiving nitrate of soda.

(3) The average amount of nitrogen removed annually in the drainage water from the soil receiving sulphate of ammonia was approximately 29 pounds per acre, and from the soils receiving nitrate of Soda, 39 pounds per acre.

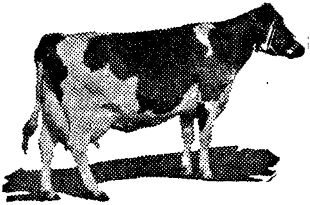
(4) The lime content of the crops receiving sulphate of ammonia was greater than that of the crops receiving nitrate of soda. More lime was removed in the drainage water from the former soils than from the latter.

It is interesting to consider how far the results may be applied to conditions existing in Jamaica. The soils used in the experiment were light and sandy, so that the effects observed were at a maximum for the climatic conditions. The rainfall during the experiment varied from 30 to 35 inches per annum. The higher tropical rainfall of Jamaica would tend to increase the leaching out of the nitrate and the production of soil acidity. The higher temperature would cause the change of ammonia nitrogen to nitrate nitrogen to be more rapid. The difference in the effects of the two forms of nitrogen would tend to be less under tropical conditions.

In general, therefore, under conditions existing in Jamaica, nitrogen in the form of ammonia is probably the more economical form to use.

Ammoniacal nitrogen is cheaper, unit for unit, than nitrate nitrogen; there is less risk of its being washed from the soil by heavy rains; its effect is nearly as rapid as that of nitrate; it will not tend to make heavy soils sticky; and any acidity which it may induce can be readily counteracted by the cheap supplies of limestone which abound in Jamaica.

Nitrate of soda is of particular use when it is required to forward the growth of a backward field or portion of a field. Bananas particularly appear to respond to this forcing treatment.



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NEW YEAR MESSAGES.

We present a New Year message from our Director of Agriculture, and also messages from the Hon. Dr. J. W. N. Hudson, M.L.C., for Westmoreland, and Hon. Dr. F. G. Veitch, M.L.C. for Hanover, whose messages arrived just too late for our December number.

The messages intended for the last number, we present without any apology, knowing that they contain much that our readers should not miss.

Department of Science and Agriculture,
31st December, 1933.

The New Year is ever associated in the mind of man with hope and a brighter outlook,. The calendar change seems to induce a more cheerful view, and problems and difficulties which loomed dismally in December appear to fade and to be replaced by more pleasant prospects with the advent of January. Enough has been said of the troubles of 1933. We cannot forget them, but we should endeavour to use their lessons to the best advantage in the New Year, and above all to realise that our diversified agriculture, fertile soil and generally genial climate, place us in the fortunate position of being able rapidly to recover from temporary set-backs. May of us have opportunities, arising from the difficult times experienced in 1933, to correct former errors and so to place new cultivations on a sounder basis than those they replace. All of us have a clear duty to the community and to ourselves to work together for the advancement of agriculture with the object of placing and maintaining Jamaica upon a secure economic foundation.

We should be prepared to march abreast of other tropical countries in methods of production; to adjust our pace in accordance with local and other circumstances; to keep a keen eye upon our markets and their requirements; and to maintain our reputation for the good quality of our products. Not only should we work together in Jamaica in the true sense of the term co-operation, but we should concentrate first upon *the careful development of those agricultural activities which are* best adapted to local conditions.

Thus the message of the New Year is one of hope, endeavour, and mutual helpfulness, which should, if practised in Jamaica, go far to make 1934 a year of prosperity.

A. C. Barnes,
Director of Agriculture.

Clifton, Darliston, Jamaica, B.W.I.,
18th December, 1933.

To the Agricultural Community of Jamaica:

I have been honoured with a request from the Secretary of the Jamaica Agricultural Society to send you a Christmas Message.

Fellow Agriculturalists, although we have been tested severely on two occasions in 12 months by Powers over which we have no control in the destruction of our crops, and although we must of necessity feel these tests severely, yet by God's help we will again manifest our determination to put forward a bold front with the hope of eventually coming through. Dear friends, we do not know the wisdom of God, neither have we any right to question it for we do know His goodness. Let us go forward again doing all we can to help ourselves and He will help us. This is our duty to our country, our children and ourselves;

and if we are faithful to our trust we will come through. May God grant that although the Christmas of 1933 must be a sad one the Christmas of 1934 will be one of extreme happiness and pleasure, particularly so when we look back on the efforts we have had to put forward to stand on our legs once more. Let us join hand in hand one with the other, rich man and poor man, big man and little man and go forth with every confidence that what we aim for will be attained.

I remain,
Your sincere friend,
J. W. N. HUDSON.

I have noticed with pleasure that the Editor of this Journal has been preaching the doctrine of co-operation throughout the country, and I sincerely hope his utterances have been falling on good soil.

The present co-operative marketing among banana planters is an example of co-operation in practice and now there comes another call to planters to support the movement for compulsory insurance of bananas. The necessity of this being obvious I commend its careful consideration to the agricultural community of Jamaica.

With best wishes for a happy and prosperous New Year.

Lucea. F. G. VEITCH.
19.12.33.

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EDITORIAL COMMENTS.

Another Viewpoint regarding Agricultural Credit.

In many of our Editorials in previous issues, we have been urging Agricultural credit as a prime necessity to our agricultural prosperity.

We propose to-day to very briefly discuss another phase of the same subject, no less important to its realisation and success; that is the responsibilities of the present borrowers and members of existing Co-operative Credit Societies.

It is on their performance that our fitness for further credit facilities will be judged and the importance of a proper moral and business appreciation of ones credit commitments cannot be over emphasized.

We know from personal knowledge that a large majority of these small borrowers have done excellently in the past despite adverse circumstances, but we also know that too high a percentage of borrowers default and give trouble to a greater or lesser extent for the collection of their debts.

The reasons underlying many of these troublesome accounts may be traced to an insufficient knowledge on the part of both borrower and lender as to the uses for which the various types of available credit may be considered permissible and which would offer reasonable chances for its prompt repayment.

Credit in its broad sense is only of benefit when it can create returns or assist in doing so in excess of its value and interest charges or create savings or economies in like measure.

The advisability or otherwise of borrowing will always depend on an honest answer to the question above.

The length of credit likewise must depend on a reasonable expectation of the time necessary to create the returns expected. In this regard short term maturing loans for use in a investment offering only returns in periods much in excess of the credit have frequently been more a burden than a benefit.

We appeal to all members and borrowers of existing credit organizations to think well before borrowing and after borrowing to use the loans wisely. It is only by action of this sort that the benefits of credits to lender and borrower may be achieved.

The Citrus Outlook.

It has been frequently stated that the Jamaican Farmer rushes to establish crops of a eertain kind during boom prices. We ourselves know of many such instances that offer support to such a statement.

We well remember the rush to plant cane, on lands of all descriptions, suitable and unsuitable, too dry and too wet, too hilly for cheap handling, etc., etc.: this was when canes were fetching £3 to £5 per ton.

Our memory carries us unfortunately further to the unhappy end with a majority experiencing financial loss to a greater or lesser extent.

This incident could be duplicated in other crops but this is entirely unnecessary for our purpose.

To-day we find citrus prices very low and many anxious questions as to whether our advice to expand the industry is quite wise.

We have this to say about it,

Let us ask ourselves;

What is the present position?

Ninety per cent. of our present citrus exports are of nondescript varieties, the lowest grades on the market, a product that the dealer will

always lack confidence in. This product is produced under nearly wild conditions, with none of the meticulous care which orchard crops of this kind must have. No spraying, cultivation or fertilizing is done. These nondescript varieties (very popular to our local tastes) nevertheless naturally crop at a period of the year which is the natural cropping period of the large sub-tropical countries producing citrus. These countries have a narrower cropping range than we fortunately possess, due to possibilities of frost, a possibility we need not take account of in Jamaica.

Yet we know by growing proper standard varieties of citrus we can carry that portion of our crop, which do not mature early enough to gain the advantage of good prices in the very early markets; over into the winter and spring of the succeeding year, when prices are invariably higher and more renumerative.

Other aspects of present prices may be mentioned. It is not that prices in the currency of the consuming countries are less this season than last, rather it is that that the value of Canadian Currency has depreciated. Last year the Canadian dollar meant 5/- to us, this year the same dollar will only bring us 3/9. Commodity prices are below reasonable or even cost of production levels for nearly every agricultural product of the world. Wheat, meat, dairy products, cocoa, coffee, sugar, oil bearing seed, other grain, are no exceptions to this abnormal state of affairs.

Why should we therefore accept this passing phase of prices as normal. It is not. One adverse factor; shipping rates being higher than competing countries need not be a permanency by any means. Our out put is still small and hardly permits of any effective collective bargaining with large steamship companies; but this should also not be a permanent feature to our citrus production.

It appears to us that our basis for recommending increased citrus production is as sound as ever; and we repeat them.

1. As an alternative crop to the Panama Disease threatened Banana Industry, and as a crop for areas not suitable to banana production, but suitable to citrus.
2. Our cost of production being less than other large citrus producing countries we should be able to compete in the markets on our merits which is more than can be said for the banana, the cane, or the cocoanut.
3. Proper standard varieties, will of themselves fetch better prices, and enable marketing in seasons of better prices.
4. Volume production will influence lower steamship rates.

Wise farmers will diversify their crop and certainly include citrus in the farm economy.

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IMPORTANT NOTICE.

Vegetable Export to Canada.

Below we reproduce a letter received from the Jamaica Producers' Vegetable and Small Fruits Association Ltd., which we feel sure will be very welcome to those of our readers interested in the vegetable industry.

We are sure that much larger acreages of vegetables would have been planted had there been any certainty before now of the Association functioning. It is not too late however for those interested to establish small plots, if for no other reason, to gather kowledge of technique in their growing.

Jamaica Producers' Vegetable and Small Fruits Asscn., Ltd.
4 Princess Street, Kingston,
January 5th, 1934.

Secretary, Jamaica Agricultural Society,
Kingston.

Dear Sir,

It may be of interest to Vegetable Growers to know that the Vegetable and Small Fruit Association anticipates packing and shipping vegetables during the coming season. Tomatoes will of course be the principal crop, but, it is expected that small trial quantities of egg-plant, cucumbers and sweet-peppers will also be grown and sent away.

Those of your readers who wish to make shipments through the Association will be well advised to get in touch with our Management before planting, as we shall be able to handle only the variety, size and quality which is required by markets abroad and unsuitable vegetables will of necessity have to be rejected at the Packing House. The object before every grower to-day should be to create a good name for Jamaica vegetables even at a sacrifice of large sales.

The Association is still without any promise of Government support, a further memorandum however, is being sent forward offering collaboration of the Association with the Department of Science and Agriculture in order to carry out the experiments suggested in the Recommendations of the Fruit and Vegetable Conference, and, it is hoped that Government will find it possible to give some financial aid.

At present it is proposed to operate the packing and handling in the buildings at 4 Princess Street at which place all deliveries will have to be made. Through the generosity of an interested party who is anxious for the success of vegetable growing in the Island, we have been able to arrange for Cold Storage with new and modern machinery which will only cost the Association running expenses.

We understand from our Brokers in Canada that fair prices are to be expected for tomatoes, and it is the earnest hope of the Directors of the Vegetable Association that as many growers as possible will put into cultivation small patches, so that, without any serious financial risk, an agricultural development which should be of the greatest advantage to the Island may be tested out.

In closing we might say that our operations last year satisfied us that tomatoes can be grown, packed and shipped to Eastern Canada with success, and that by handling large quantities this can be done on a commercial scale at a reasonable profit to the grower. Other markets will also be tested out but no large shipments will be made until the problem to each market is satisfactorily solved.

Yours very truly,
for A. R. Moxsy, Chairman.

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EXTRACTS FROM HIS EXCELLENCY THE GOVERNOR'S SPEECH AT OUR LAST HALF-YEARLY MEETING.

We publish below extracts from the speech of His Excellency the Governor (who presided for a short time at our last Half-Yearly General Meeting) in reply to the address of welcome tendered him by our First Vice-President.

As will be seen these pronouncements are of the greatest importance to agriculturist and should give food for much thought. We endorse them and hope that as seed these expressions will fall on good reproductive soil.

"I should like to emphasise one point, which I noticed in Mr. Cawley's Christmas message, and that was, the small membership of the Society, I was very much struck with the figures in your message Mr. Cawley, when you said there are 150,000 small planters in Jamaica, and only 6,000 members of the Agricultural Society. I think no more need be added to that than that you ought to have a much larger membership. When you consider all the advantages the Society offers, not the least being your Journal, and all the privileges members derive, I am surprised to find that there are only 6,000 members of the Society. Only this morning I received from a practical planter a quite spontaneous tribute to that Journal—that at least it was worth the whole subscription—the practical articles, and all the information that it gives (hear, hear). It is prefectly extraordinary I think, the advantages which people in Jamaica can get for such a small sum, and I do earnestly endorse your First Vice-President's appeal for a larger membership.

The other point is the many appeals—not appeals exactly, but the many letters the Branch Societies write in to Government, either direct, or through the Parent Society, representing the need for this, that, and the other in their particular districts. I am now thinking particularly of roads. I usually get application from Parochial Boards urging that Government take over or improve such and such a road, and no sooner than we atttempt to deal with those representations from a particular Parochial Board, than a few weeks later, almost the same resolution come in from the Branch Societies concerned. I am not cavilling at that, in the ordinary way, but may I appeal to you as representatives of Branch Societies to give those representations a moratorium for the next 12 months (laughter). Why I say that, is this; there is no money at all, and there is no need blinking at the fact that there is no money for further roads, for further taking over of parochial roads, at any rate for this year.

We all hope it may become available again in another year's time, or another few years, but the Colonial Secretary will tell you in far more trenchant words that I can use that there is no money at all for those works. I do not want to be doleful, or sound a doleful note in these Half-Yearly Meetings, but I am forced to remind you at this time particularly of what I said last year January—beating the air and plowing the sand is a very unprofitable occupation at any time, so will you give those representations a moratorium for a year at least, and then when Jamaica has recovered itself—and after all it is only natural that Jamaica should want a breathing spell after 1933—when Jamaica's finance recovers itself then we will be able to deal more hopefully with those applications. It only wastes my time and the Colonial Secretary's time and every one's time to read and re-read applications for improvements that money cannot be found for. Let us devote

ourselves to practical matters for the coming year. Well now I hope you won't take—that appeal in the sense that I am too pessimistic, but just as I say, face the facts. Now we have a large agenda before us, and I am not going to keep you any longer. I thank you.

NOTICES.

We have been supplied with a copy of a British Government Order prohibiting the importation of Elm trees and conifers or any plants of either, which would include trees, shrubs, roots, layers, cuttings or other parts of the plants, effective as from the 1st December, 1933.

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Extract from Pamphlet No. 61 *Department of Agriculture, Dominion of Canada.*

POTASH IN AGRICULTURE.

By FRANK T. SHUTT, M.A., D.Sc., F.I.C., Dominion Chemist.

Potash is one of the three "essential elements of fertility"—nitrogen, phosphoric acid, and potash. These elements have received this appellation not because they are any more essential to the growth of crops than the other nine or ten elements entering into the composition of plant tissues, but because they are the three which must be constantly returned to the soil if its productiveness is to be maintained under our ordinary systems of farming, which, as we well know, entail the removal and sale of at least a portion of our crops.

Of the three, potash is more widely distributed and less frequently deficient in soils than nitrogen and phosphoric acid and may be considered the least important from the standpoint of the necessity of application. Clay loams as a rule are well supplied with potash and seldom respond profitably to an application of a special potassic fertilizer. Indeed upon heavy clays such an application may depress the yield by bringing about an unfavourable condition of tilth. It is more particularly sandy and gravelly loams, calcareous soils and soils rich in vegetable matter, as mucks and peaty loams, which are poor in potash and upon which this element may be expected to give a profitable return.

Again, it is not all crops that call for special potassic manuring. On our staple cereal crops, wheat and oats, potash seldom gives a remunerative return, save on the lightest and driest soils. Barley for malting purposes is to some degree an exception among the cereals, frequently responding profitably to potassic manures and particularly so on sandy soils.

If potassium is one of the essential elements for growth, as we have stated, it must perform certain vital functions in plant nutrition. The most important of these, it would appear, is related to and indispensable for the production of the carbohydrates—starch, sugar, and cellulose—within the plants. Hence it is that crops rich in these constituents—mangels, sugar beets, potatoes, sunflowers, corn, etc.—are those which are specially benefited by potassic manures. Fruits, large and small, and the leguminous plants—Clover, peas, etc.—must be added to the list of those responding to potash. These are the crops, then, on sandy, gravelly loams, for which potash should be reserved, whether it be contained in a purchased fertilizer or one of the home resources, as wood ashes, seaweed, etc.

(Bananas are large users of Potash. Ed.)

MANURE AS A SOURCE OF POTASH.

Farm manures are not usually thought of as a source of potash, much to our national loss. It may be safely said that thousands of tons of potash from this source are annually wasted in Canada. With certain minor exceptions, as in the wool of sheep and the milk of dairy cows, practically all the potash in the feeds and fodders consumed by our farm stock is excreted by the kidneys. More than 90 per cent of the total potash excreted by the animals is to be found in the urine, and this in addition to the fact that one-half or more of the total nitrogen excreted is also present in the liquid excreta. It thus comes about that weight per weight urine has a greater manurial value than the solid excrement, and

this not only by reason of its larger percentages of potash and nitrogen, but because these constituents are in a soluble condition and practically at once available for the nutrition of crops. To support these statements we append the following data, giving the average composition of the solid and liquid excreta of our farm stock.

COMPOSITION OF URINE AND SOLID EXCRETA.

Animal.	Excreta.	Water.	Nitrogen.	Phosphoric Acid.	Potash.
		p.c.	p.c.	p.c.	p.c.
Horse ..	Solid ..	75.0	0.36	0.35	0.1
	Liquid ..	90.0	1.52	trace	0.92
Cow ..	Solid ..	86.0	0.44	0.12	0.04
	Liquid ..	91.5	1.05	trace	1.36
Sheep ..	Solid ..	57.6	0.72	0.44	0.30
	Liquid ..	86.5	1.31	0.01	2.0
Pig ..	Solid ..	76.0	0.48	0.58	0.36
	Liquid ..	97.6	0.50	0.14	0.70

It has already been stated that practically all the potash in the foods is excreted by the animal. To illustrate this fact the following results of an experiment conducted at the Rothamsted Experimental Station may be given.

POTASH RETAINED AND EXCRETED.

——	In 100 lb. Oil Cake.	Fattening Steers.			Milch Cows.		
	Lb.	In Mea	In Urine	In Feces	In Meat	In Urine	In Feces
Potash ..	1.4	0.02	1.10	0.28	0.14	1.05	0.21

The evidence is therefore conclusive as to the greater richness of liquid manure in potash. To allow it to be wasted as it is on too many farms to-day is little short of a crime against the land. Its value as a nitrogenous fertilizer could be emphasized even more strongly than as a source of potash, but the chief object in this bulletin is to call attention to it as the latter. By conserving this liquid manure and returning it to the land practically all the potash taken out of the soil by the growth of our crops could be put back for future use. It will not be found advantageous to run off this liquid manure into cisterns for subsequent application as such to the land as is done in many European countries owning to our rigorous winter and the high price of labour, but a sufficient quantity of absorbent bedding material to hold it with the solid excrement must be used. Straw, preferably cut short, and air-dried peat and muck are excellent absorbents and they subsequently give up their plant food to swell the amount contained in the excreta, besides giving bulk which will facilitate the more uniform distribution of the resulting manure on the land.

WOOD ASHES AS A POTASSIC FERTILIZER.

The ashes of wood have long been recognized as a fertilizer of very considerable value, indeed their use in agriculture is historic. In all countries, including Canada, practising agriculture, they have been highly prized, especially for clover, grapes and fruit trees and leafy crops generally, on sandy and light loams and it was only with the advent of the high grade potash salts that their use fell off, though of course, their production in decreasing quantities of late years, owing to the disappearance of our forests, has been an important factor in making it more and more difficult for the farmer in the older-settled districts to obtain them.

They are essentially a potassic fertilizer, ashes of good quality, that is, dry, unmixed with sand, etc., and unleached, containing between 4 per cent, and 6½ per cent potash—the average potash content being about 5½ per cent. This potash is in a soluble form and hence immediately available for crop use; moreover, it exists in these ashes in a condition (the carbonate) much more favourable for the nutrition of plants than in more commonly used compounds and should be worth at least 1 cent. per pound more than in the latter. There is in fact no better potassic fertilizer.

In addition to their potash wood ashes contain some 2 per cent, phosphoric acid and from 20 to 30 per cent. carbonate of lime, enhancing their fertilizing value and making them, in a sense, an all-round fertilizer for supplying the mineral elements required by crops. And, further, they correct acidity, a condition detrimental to the thrift of most farm crops. Muriate and sulphate of potash are of no value for neutralizing acidity.

Naturally, genuine wood ashes are somewhat variable in composition, depending partly on the nature of the wood producing them and partly on the care with which they have been collected and stored. Wilful adulteration of a gross character has been occasionally detected in commercial samples, addition of sand and other inert matter and leaching being the most common forms of adulteration.

There is a general belief that ashes from hard woods, as a class, are richer in potash than those from soft woods but our analyses scarcely confirm this impression. As might be expected, woods differ very considerably in their potash content and the ashes of twigs and boughs are much richer than those of trunk woods. Pine and other soft woods as a rule contain less ash than the hard woods and are much lighter in character and it is this latter quality or property we think that has given rise to the common belief referred to. According to our results we cannot find that *weight for weight*, the ashes of soft wood are much, if any, poorer than those from hard woods.

Our advice must therefore be to conserve more carefully this home source of potash, not merely collecting the ashes from the house stoves but burning such brush piles, old roots, etc., as may result from the clearing of land, pruning of orchards, etc., and saving the resulting ashes. Storage in a shed or receptacle protected from the weather is essential to prevent deterioration.

From 25 to 50 bushels of wood ashes per acre will furnish from 60 to 120 pounds of potash, the latter an ample dressing for even very light soils. They are not needed on heavy clay loams, indeed their use on such may destroy good tilth and do more harm than good. Their application is best deferred till spring, broadcasting, preferably on a quiet damp day, on the ploughed land and incorporating with a thorough harrowing.

For clover, corn and mangels, they will be found very valuable. Especially are they beneficial for orchards and for grapes on sandy loams. For turnips, mixed with one-third to one-half their weight of bone meal, they have similarly proved advantageous. But indeed there are few crops on light and gravelly soils, as also on vegetable loams inclined to be sour, for which wood ashes cannot be employed with profit.

Gypsum, commonly known in the ground form as land plaster, is a naturally-occurring sulphate of lime. Although supplying lime it is of no value for the correction of acidity (sourness) of soils, for which purpose lime or ground limestone must be employed. But the furnishing of lime does not constitute its chief manurial value. It has the property of acting on the insoluble potassic compounds of the soil, setting free for plant use a part of their potash. This is its most important function and it is this property that has made it specially beneficial as a top dressing for clover, a crop that particularly responds to potash. The application of land plaster is usually from 300 to 600 pounds per acre, which may be broadcast on the prepared land and harrowed in.

Large deposits of gypsum occur in New Brunswick, Nova Scotia, and Ontario, and as it is readily quarried and is comparatively soft material, land plaster may be purchased cheaply—in many districts at a lower price than ground limestone.

Users of superphosphate (acid phosphate) will have no necessity to apply land plaster since this phosphatic fertilizer contains sulphate of lime as a necessary constituent.

Nitrate of soda is a well-known, highly efficient nitrogenous fertilizer. It has been shown that crops "feeding upon a neutral salt like nitrate of soda, take up more of the nitric acid than of the soda." This soda acts chemically upon the stores of insoluble potash compounds, setting free a certain amount of potash and thus rendering it unnecessary in a certain measure, to directly apply a potassic fertilizer. It is this liberation of soda within the soil that is the cause of the deleterious action on the tilth or texture of heavy clay loams when large and frequently repeated applications of nitrate of soda are made, for soda has *the property of deflocculating clays, making them sticky when wet and* refractory when dry. We should not advise any special application of nitrate of soda to make up for the lack of a potash fertilizer, but it is obvious from what has been stated that its use to a certain degree obviates the necessity of such an application, especially on heavy loams.

The use of Potash.

It is the light, sandy and gravelly soils and muck, soils that as a rule are markedly deficient in potash, and on which profitable returns may be expected from the application of this element. The rate of application will, of course, depend on a number of factors, chief among which are the character and fertility of the soil, and the nature of the crops to be grown. For most grain crops an application of muriate of potash of 50 to 75 pounds per acre will probably be found sufficient. For clover and alfalfa these amounts might be doubled with profit. For potatoes, roots, corn and leafy crops generally, 100 pounds of muriate of potash per acre may be considered an average dressing, but frequently 200 pounds may be profitably used. As a rule it will be found more advantageous to use potash with forms of nitrogen and phosphoric acid than alone and it is always advisable to dry out the fertilizer on a small scale before making large purchases.

IRISH POTATOES.

A Heavy Yield of Cobblers.

On 10th March, Mr. T. A. Hollis, Sr., of Crawl, planted 9 barrels of Irish Cobblers, and subsequently reaped 122 barrels, an unusually large crop.

It should be interesting to know the methods of culture by which this large crop was obtained, and Mr. Hollis has kindly furnished the following facts. The potatoes were planted in three plots. The largest yield was obtained from land to which seaweed had been applied, the second plot had been manured for strawberries which failed because of wind injury, and the third plot had been previously cropped with sweet potatoes. It will be seen by the foregoing that the yields were not due to extra heavy applications of manure. Castor pomace at the rate of two bags to each barrel of seed was forked in. The potatoes were moulded with hand hoes, and were trice sprayed with bordeaux by one of the Department's power sprayers.

The above record shows that the cultural methods employed by Mr. Hollis in growing this large crop were not unusual in any way, nor beyond the reach of any other farmer, yet most growers of Cobblers followed methods which gave much smaller yields. Mr. Hollis is a very careful and thorough farmer; his land is always in good tilth, each cultural operations is done at the right moment and in the best manner.

Agricultural Bulletin of the Bermuda Department of Agrivulture, October, 1933.

(*Extract from Scottish Seed Potato Trade.*

Some Cultural Considerations.—

One is sometimes asked which is the best variety of potato to grow, and what is the proper size of seed, but to such questions no direct answer can be given. The grower should know best, but he can be helped by the intelligent seedsman. "Chats" do very well where the water level is high, but small sets do not give the plants such a good start as the larger sets, and in a period of drought the larger sets bave a distinct advantage in that they provide a source of water. The tuber absorbs water and increases in size after being planted. Some districts prefer very large seed, larger than 2 inches, but that seed is usually cut and the resultant crop is much larger tubers. It is somewhat risky to cut some varieties, especially Majestic and King Edward. Cut seed is better kept in a warm moist place than in a bright sun and a drying wind before planting. Probably the best results are obtained from planting large medium-sized tubers. In growing for the early market, large tubers are desirable, as growth comes away better and maturity is earlier. In Scotland the crop is now largely grown for seed purposes and large sets planted whole give best results, because there is a greater proportion of seed-sized tubers owing to more eyes sprouting. In fact some growers break off the main sprout in order to encourage side sprouts, and thus produce a greater number of tubers. The question as to which is the best size of set has been tested for the past century and is still being tested. The sprouting of potatoes is important when the crop is wanted for the early market, but it is also important in respect of first early varieties, so susceptible to blight, in order to have a full crop before blight usually appears.

VIRUS DISEASES AND THEIR IMPORTANCE.

(Extract from the Scottish Seed Potato Trade.)

Mosaic was isolated by Dr. Quanjer in Holland and described by him in 1913. It is generally recognised by a mottling of the leaves with an indistinct pattern or mosaic of faint light green or yellowish spots, and the leaves are usually crinkled. The yellow variegation seen in ninety-fold has no relationship to mosaic. The disease is said by some to be spread principally through the agency of green fly, which carry the infection from diseased to healthy plants. Infected tubers used for seed transmit the disease to next season's crop. Most varieties are subject to the virus diseases and no district is clear of it, but in every district there are good healthy stocks, and it is the selection of these stocks that now forms an important part of the business of the seed merchant.

* * *

The National Institute of Agricultural Botany, Colleges, Farm Institutes and various other bodies all over England have tested the relative merits of English saved and Scottish seed. These tests have shown that it is the greater freedom from virus diseases, that establishes the superiority of Scottish seed. In English tests low yields have been traced to virus diseases, which predominate to a greater extent in English seed and cause "degeneration" or "running out" of the potato. Thus the value of seed almost entirely depends on the presence or absence of virus diseases, coupled with the presence or absence of wildings and bolters. These tests also show that the district from which the seed is obtained does not affect the yield or maturity directly, but only in so far as the district may be favourable or otherwise to infection of the seed with virus disease. The climatic conditions of Scotland do not favour the development of the aphis and are to a certain extent a safeguard against the spread of the disease. This superiority of Scottish seed is recognised not only in England, which is the principal outlet for Scottish seed, but also in South Africa, which now mainly draws its requirements from Scotland, and in the last two years a considerable quantity has been specially grown in Scotland for Spanish requirements. To retain and increase these foreign outlets it is necessary that the trade should be in the hands of seedsmen who think of their reputation as well as their profit.

'HEY'RE
'ASTIDIOUS
'EOPLE . . .

IITE KNIGHT RUM
IITE HORSE RUM
IITE LABEL RUM
ACK SEAL RUM
EEN SEAL RUM
O. R. RUM, Etc., Etc.

and they drink like fishes—but they can't help it—the old man got in the habit of taking home a bottle of Lindo's Rum every evening and now they can't do without it—no wonder they are fastidious.

S. C. LINDO
40-42 ORANGE STREET.

THE CULTURE OF THE BANANA IN JAMAICA.

Continued from the November issue.

Pruning:—PART I.

This operation of banana culture is a fine art. It is so important, that its details should be planned for month by month, the supervision be as close as possible, and its execution only carried out by skilled people experienced in the work.

The objects of pruning, are—

1. The general welfare of the individual plant.
2. To ensure quality of the fruit.
3. Maximum size of bunches.
4. The proper timing of the crop and to a less important extent the provision of plants for future planting.

The knowledge of proper pruning is usually the last branch of banana cultural practice acquired by the banana planter or his supervisory staff and this because of its many intricacies.

The alpha of good pruning is of course the proper planting of good suckers at the proper time. (See chapter on planting.)

We will discuss the objects of pruning briefly, before dealing with the methods of pruning—

Little need be said with regards to objects 1, 2 and 3 as their necessity to profitable production should be obvious. The anti thesis to pruning is of course crowding and every banana farmer is familiar with the slim elongated tree and small poor fruit resulting from the clustering of suckers for any length of time in an unpruned root.

With regard to object 4, the proper timing of the crop, many factors enter; the growing seasons peculiar to the country or portion of the country in which the crop is being grown, the natural periods of the year in which the best fruit is produced; the marketing periods of the year that is most favourable, and the existence of any definite storm seasons, all influence the pruning plan for the timing of the crop.

It should be noted that several of these factors may under certain curcumstances be opposed to each other. For instance, should the best marketing periods, or the best fruiting periods, coincide with the storm seasons, a very awkward combination would present itself to the banana grower and his risks on an already risky crop would be multiplied many times.

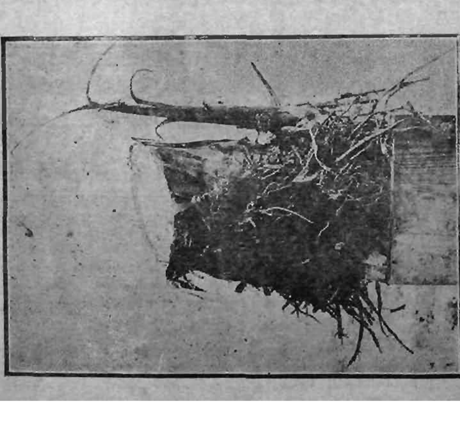
The most favourable combinations of factors fortunately exist on the low altitude, high temperature irrigated alluvial plains of this island. Other areas vary according to the cicumstances of their climatic conditions altitude and soil, being close to or further away as the case might be from the nearly ideal combination of factors possessed by the irrigated plains just previously referred to.

For an easier understanding of the conditions being discussed, I will describe in more detail those of the fortunate irrigable plains. They possess the following possibilities with regard to banana production.

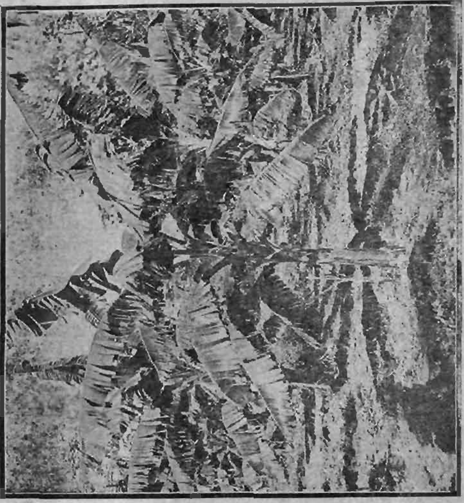
1. A well defined hurricane season.

   Hurricanes of high velocities sometimes occur during the months of August and September. Storms of lower velocities only are usually experienced in the months of October and November. An occasional norther in March and April have frequently done damage in localized areas, hardly ever in a general way.

2. Rapidity of production, i.e., the ability to produce a plant crop within 12 to 14 months after planting the sucker and to



No. 1. The ideal plant for supplying. Is well able to overtake the original plantings.



No. 2. Plant shown in July—September with hurricane peeper saved alongside. In case of storm damage during the Jamaica hurricane period August—September, the peeper would be cropped, yielding fruit by August of succeeding year.

produce successive ratoon crops which have been properly pruned for, annually at or very near to the months of production of the plant crop.

This ability for a truly annually recurrent crop is possibly, the result of, a suitable and somewhat alkaline soil (alkalinity rather hastens maturity although extremes have a tendency to produce small fruit) a relatively high temperature, with minimums rarely under sixty degrees Fahrenheit, and as low as this for only very short periods, the average possibly over 80 degrees, two definite periods of growth annually, and an efficient irrigation supply that ensures a continuous moisture supply and continuous growth.

3. The best fruiting period the spring and summer months; the fall and winter fruit being frequently quite inferior in comparison.
4. The best marketing period of the year, March to July.

The hurricane season and the marketing periods are of course common to the whole island, but the rapidity of production and the best fruiting periods are not. These latter attributes varying with different districts.

Assessing the value of the combination of factors peculiar to the irrigated plains, we find:—That the best fruiting season and the best marketing season coincide which is of course a very valuable circumstance, and when it is realized that the hurricane season is subsequent to the period when it is most profitable to produce and harvest the crop both for its quality and the market conditions the good fortune of the combination must be appreciated.

It is therefore clearly indicated that good pruning under these conditions should aim at producing a crop to be harvested between the months of March and July, of each year, and of course a crop of quality and size.

A great percentage of the hurricane risk can thereby be obviated in the cropping year.

The year previous to the cropping year, the hurricane risk can also be minimised by having the plants sufficiently young in August and September to be practically hurricane proof, except of course to the 120 miles an hour "screamers" which fortunately do not visit us quite so often, and to be without fruit or at least nearly so in the months of October and November, so as to be then resistant to the lower velocity storms.

Storms of 40 to 60 miles an hour will blow down practically 100% of fruiting trees, but it is surprising how well grown trees without fruit will stand up to it.

It is to permit of being able to do this, that the quality of "rapid production" of our irrigated plains becomes such a valuable one.

It has become practicable to plant in March to June and harvest the crop by July; to have the plants sufficiently young in August and September to be practically invulnerable to hurricanes except of the most destructive types and in October and November to have little or no fruit hanging on the trees.

Methods of pruning.—

As said before, the alpha of pruning is to plant at the proper time. Local knowledge of your locality will reveal how long a period is required to produce the plant crop; plant only in the late fall if a spring crop cannot be produced any other way as it is more expensive to do so, the crop incurring thereby a longer period of expenditure.

No. 3. In October—November; Hurricane peeper removed except it is required for suckers for planting in succeeding year. Freeing the plant of all competitive growth at this period tends to produce maximum sizes of fruit, as we think it is about then that the character of the embryonic fruit is definitely fixed.

No. 4. December—January; two equidistant peepers saved from which selection will later be made for production of the First Ratoon Crop.

Plant in the spring whenever possible—March and April have proven the best months, the plants experiencing the full benefits of the Spring, and fall growing periods.

After the sucker is planted, more than one eye, usually sprouts, and in the case of a virgin sucker (i.e. those that were transplanted prior to the formation of the embryonic fruit in the rhizome) a continuation of the heart growth is not unusual. No attention to pruning will be necessary for two or three weeks after planting. It will take all of this time for the eye shoots to show above ground. The continuation shoot locally called the "heart shoot" is more rapid of growth, but should not be interfered with, until, the eye shoots are satisfactorily formed and a few inches above ground. The reason for this advice is that the heart growths permit the continuation of the functions of plant growth, and as in many cases, the eyes of the younger suckers planted are yet immature and undeveloped at time of planting and from that stage take three to five weeks to appear above ground, the want of leaf to the plant for any extended period may cause death of the sucker before the immature eye has time to develp sufficiently for growth. After four to six weeks if there has been a sufficient moisture supply in the soil there should be a sufficiently numerous growth of peepers to require pruning operations to be commenced. The pruner should now go carefnlly though the field examining each plant, row by row, wringing and turning down the heart growths, where the planted sucker has already produced both heart growth and peeper. The heart growth should never be cut clean off without wringing as they can be very persistent in growth if cut clean, monopolising the plant food in the sucker and so offering very severe competition to the eye shoot.

The suckers with peepers only or heart growths only should not be interfered with at this stage.

The peepers will now be found to grow rapidly, and the field should be regularly observed, so as to ascertain the earliest possible time that a definite selection may be made of the best peeper of the root, from which to grow a crop. Normally this operation, usually termed "Singling" may be done at about the eighth or ninth week after planting.

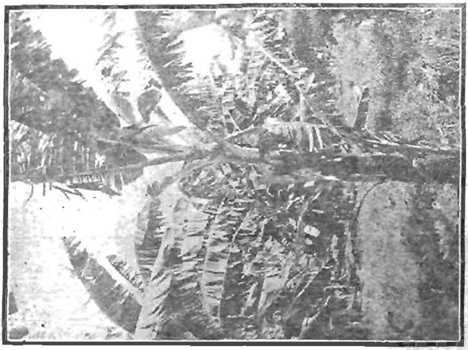
At this pruning a few roots may be found where the heart growths have monopolized the sucker. Except in a very late planting this sucker should be replaced by supplying a first class sucker in its place.

This supplying should be done by a special supplying gang under proper supervision. Before replacing these heart suckers, they should be searched to see whether a belated eye has actually started to grow underground. If eye growth has started then, the sucker would be treated in exactly the same way as a sucker with peeper above ground, and if not then supplying would proceed.

In a very late planting, where it is feared that any supply would crop in the hurricane months of August and later, it is advisable to grow the crop from the heart growth, as although it is well recognised that it means the loss of a hand or two to the bunch, this plan not only ensures the crop ahead of the hurricane season, but also the more easy recurrence of the ratoons crops in good time.

After this first singling, it has to be a continuous war of extermination against succeding peepers.

These should be removed at intervals of from four to six weeks according to the rapidity with which they grow. They should never be allowed to attain any great size, certainly not more than six or eight inches in height, otherwise they will use up the plant foods in the head and later from the soil and this competition will affect the primary sucker which



No. 5. In February peepers have progressed, and plant shooting.

No. 6. In March fruit developing.

is being grown for the crop. Another reason is that it becomes more expensive work even although less frequently done and it is more difficult to get such work done well, the bigger the sucker is to be pruned out.

This removal of unneeded suckers should be continued until the adventitious growth, from the mother sucker had stopped. In the meantime the crop plant will be growing and in four to five months if the growth is at all as robust as it should be will start to sucker of itself. In some few cases the first of these suckers are weaklings which would of course be removed in the ordinary course of pruning.

Normally by June or July a good sucker is obtainable and a single sucker should be saved on the cropping root, which is usually termed a 'hurricane sucker.'

The embryo of the fruit of the banana is usually formed at the Rhizome shortly after the plants' first effort to reproduce itself. This first effort of reproduction takes place on the irrigated plains in the fourth or fifth month of the plant's life which if planting has been done at the proper period of the year would be from June on: so that at this period and after the plants should be prevented from experiencing any considerable shock, such as, overdue pruning, deep tillage or shortage of moisture. All these as well as any injury or high winds will appreciably affect the quality and possibly the size of the fruit.

The necessity therefore for keeping the fruit free from competitive suckers during the first stages at least of the formation of the fruit and this by pruning at closest intervals should be appreciated. Such treatment will permit more of the reserves of plant food to be available to the forming fruit during the fixation of the character of the bunch, which in the case of the banana apparently takes place fairly early. The better the recommended pruning practice is carried out the greater the possibilities of the plant producing its maximum product.

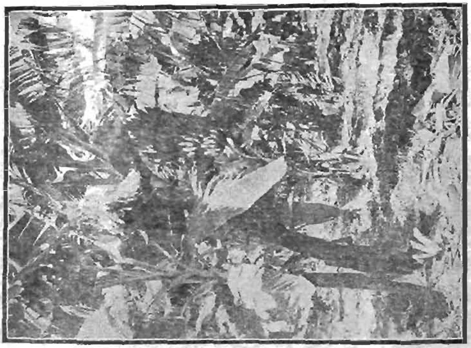
The importance of an addition of one hand to the bunch or conversely of a loss of one hand, through proper methods or its opposite, is exaggerated to an extreme degree in banana growing, due to the method of purchase in this country, whereby the loss of one hand from a standard bunch of nine hands, decreases the value by twenty-five per cent; the loss of two hands by fifty per cent.; the loss of three hands by seventy-five per cent.; the loss of four hands rendering the stem unmarketable.

After the hurricane season is over which for our purposes might be considered the end of November two other small uncut suckers should be allowed to grow seeing that they are well placed on the roots. If suckers for plants are required to be produced from the field, the hurricane sucker would then be cut back to about 2½ feet from the ground and kept in this condition until the fruit is cut when it may be removed as a plant. The two peepers saved subsequent to the hurricane season would be retained to a much later date as from them will be selected the crop sucker to produce the first ratoon crop.

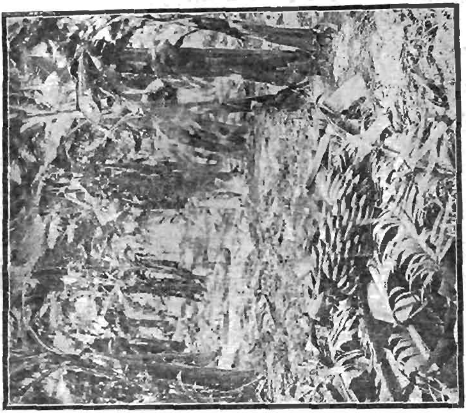
The foregoing may be considered the pruning procedure of the plant crop year. It will be noticed that at no period during that year should any clustering of suckers be allowed. The fact is we should set out to permit no growth except what serves a useful purpose on the root and if this is not done, the crop producing plant must suffer harmful competition.

We will now describe what a plant crop field should look like in the month of February about ten months or a year after it was planted:—

The cropping trees should be fully grown with fruit hanging in various



No. 7. In April fruit maturing. Followers further developed.



No. 8. May—June. Harvested.

stages of maturity and on the root would be a cut-back sucker saved in July–August of the year before and two other small peepers of possibly a foot to two feet in height well placed on the root.

(To be continued.)

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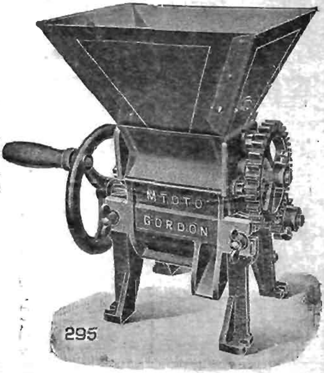

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TOBACCO.

Extracts from "The Lighter" Canadian Department of Agriculture Publication.

Nyasaland.—Tobacco planters have been urged to greater production by buyers and are increasing the acreage under production. The markets closed at the end of July. (Barclay's Bank, Oct., 1933.)

Rhodesian leaf prices in London as quoted by the Standard Bank of South Africa, August, 1933:

Fine bright, grade BBA—None available.
Good bright, grade BB—16d. per lb.
Bright, grade B—13d. to 15d. per lb.
Semi-bright, grade SB—9d. to 11d. per lb.
Light mottled, grade LM—8d. to 9d. per lb.
Dark mottled, grade DM—7d. to 8d. per lb.
Nondescript, grade N—6d. to 7d. per lb.

Tobacco Marketing in Canada.

In order to finance the grading, packing and handling charges, and advances to members the Ontario Provincial Government has agreed to establish credits through the banks up to $600,000. Mr. A. Leitch has been appointed sole trustee of the Government in the control of these credits and also placed in the ultimate control of the marketing of the tobacco. He is also chairman of the aforementioned Advisory Marketing Committee. In consequence of these arrangements, a unified policy is assured. Further negotiations are underway with a view to bringing the flue growers of Essex within the sphere of these arrangements. (T.G.M.)

Accounts of the Imperial Tobacco Co. (Great Britain and Ireland) Ltd., showed a net profit of £8,656,989 for the year ending October 31, 1932. Dividends on the ordinary or common shares amounted to 20 per cent, free of tax.

Since 1900 the consumption of alcohol in Great Britain has steadily declined, while that of tea and tobacco has just as steadily increased. Coffee has quite dropped out of the race. A century ago tea and coffee were practically equal in consumption. Now the ratio is 15 to 1. Alchohol has shown no such sweeping decline, yet the people of Britain are absorbing only half the 1900 quantity of alcoholic drinks.

Figures compiled by the British Medical Journal showing the consumption per head per annum, follows:—

	1830.	1875.	1900.	1930.
Tobacco (lb.) .	0.7	1.3	1.8	3.3
Tea (lb.)	1.2	4.5	6.0	9.9
Alcohol (gallons of proof spirit) ..	..	4.8	4.5	2.0

Tobacco was introduced into Japan about 1605, and within ten years was planted and used by all classes of the population. Early records indicate that the Portuguese were responsible for its introduction.

Effect of Fertilizer and Soil Type on Burn.

In recent studies made on the effects of fertilizers on the burning quality of cigar tobacco at the Central Experimental Farm, it was found

that phosphoric acid and potash had different effects. When increasing quantities of phosphoric acid were applied in the form of superphosphate the fire-holding capacity was reduced with each added increment up to 320 pounds of P205 per acre. The durations of burn for 80, 160 and 320 pound applications were 16.14, 10.00 and 5.91 seconds respectively.

With quantitative applications of potash in the form of sulphate the duration of burn increased with each increase of potash applied. In these leaf burn tests the averages were 4.43, 8.64 and 10.00 seconds for no mineral potash, 100 and 200 pounds applications in above regular order.

Since each of the above averages are based on forty tests conducted on each plot and each treatment was replicated four times, the results should be a fair average, especially in view of the apparent consistency of the results.

United Kingdom—Imports of Tobacco Leaf (Pounds).

Countries.	Jan.-Dec., 1932.	Jan.-Aug., 1932.	Jan.-Aug., 1933.
Canada ..	10,699,491	8,937,967	12,075,404
Northern Rhodesia	853,505	160,678	179,910
Southern Rhodesia	10,310,631	4,859,186	5,452,136
Nyasaland ..	15,106,218	6,734,243	5,971,216
British India	9,163,994	6,300,782	9,567,266
British North Borneo	684,789	684,789	534,308
Other Empire	975,812	717,254	510,969
Total Empire	47,794,440	28,694,899	34,291,209
United States	125,290,090	60,361,068	72,531,960
Other Foreign	3,019,704	1,355,828	1,314,983
Total Foreign	128,309,794	61,716,896	73,846,943
Totals	176,104,136	90,411,795	108,138,152
Empire Proportion	27.1%	31.7%	31.7%

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DAIRY NOTES.

Peanuts and Cowpeas as protein Fodders.

Below we reproduce from a recent issue of "The Journal of the Mysore Agricultural and Experimental Union, India, analyses of several cattle foods, both fodders and cereals which should be of much interest to Livestock men but especially Dairymen. We have more than once pointed out the nearly entire absence of high protein fodders in Jamaica which accounts to a great extent for our inability to produce dairy cows of an average production capacity comparative to that of the large dairying countries and as a consequence our cost of production of milk is much too high.

It will be seen that peanut and cowpeas fodders both of which grow well in the tropics are both of high food values and we unhesitatingly advise dairymen to grow and use them.

Fat, Protein and Hydro-carbon contents of Groundnut Hay compared with other fodders and feeds.

	Protein.	Hydro-carbons.	Fat.
Groundnut hay ..	11.75	46.95	1.84
" entire plants	13.48	36.28	15.06
	13.5	36.2	15.0
" stems only ..	10.0	42.0	3.6
" kernel ..	26.6	16.7	42.0
Clover hay	12.84	48.31	2.11
	12.4	33.8	4.5
Lucerne hay ..	16.48	42.62	2.03
	14.3	42.7	2.2
Cowpea ..	19.72	45.15	4.04
Ground maize and oats	9.6	71.9	4.4
Maize flour	9.2	68.7	3.8
Wheat flour ..	15.4	60.4	4.0
Cotton seed cake ..	42.3	23.6	13.1

	Groundnut hay.	Clover hay.	Lucerne hay.
Moisture ..	7.83	14.30	6.95
Nitrogen	11.75	12.84	16.48
Fat ..	1.84	2.11	2.03
Carbohydrates ..	46.95	48.31	42.62
Fibre	22.11	29.27	31.38
Ash	17.04	7.47	7.49

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VEGETABLES.

Montserrat Government Marketing Depot.

The Government Marketing Depot started to function in 1932 as an extension branch of the Agricultural Department for the purpose of centralising the marketing of fresh fruit and vegetables of the island; the main object being to assist small growers, who by their individual and unaided effort are unable to market their produce successfully. The Depot received the necessary financial assistance from the Government Treasury by an Advance Account, repayable periodically on the receipt of account sales for produce shipped. Advances were obtained from the Treasury for the purchase of all crates, packing material, labour, etc., and to peasant growers advances were made for tomatoes shipped by the Depot.

During the season under review tomatoes and other fresh vegetables were received from 300 peasants and 15 estate proprietors. Again tomatoes formed the chief item of export. The crop shipped by the Depot amounted to 11,286 crates of 20 ℔. net weight each.

Tomatoes were received daily at the packing Station from January to June, and placed in cold storage immediately after packing. This was a great boon to growers, who in the past were only able to reap a few days in a fortnight. Undoubtedly, the daily receiving of tomatoes reduced the waste of over-ripening in the fields to a minimum.

During the season the peasants' total deliveries amounted to 159,214 ℔s.; of this amount 43,032 ℔s. were discarded as unfit for export. The percentage of discard was 27. The planters received 136,136 ℔s. of which 25,996 were discarded. The percentage in this case was 19. During the whole time that tomatoes were received a special officer of the Depot was detailed off to weight up discards individually. Thus each grower bore his own percentage of discards, and the former system of discarding by pool, after a first rough discarding before weighing, was eliminated.

The average discard per cent. over the whole period, therefore, worked out as follows: Peasants 27 per cent. and planters 19 per cent. It is significant that this discard figure is identical in both cases with that of 1931. It is rather unsatisfactory, as it was hoped that growers would learn the lesson of leaving culls in the field. Many growers hauled to tbe packing station culls whicb obviously could not be accepted. Why go to the trouble and expense of hauling immature, small or defective tomatoes several miles? This not only increases the expenses of the growers, but the work at the packing station also. It is hoped that growers will send in their tomatoes and other produce in better condition next season.

From Report of Agricultural Department, Montserrat, 1932.

Packing and Grading Vegetables.

It should be remembered by the growers of vegetables for northern markets that, while his produce may be of the best quality, it will return him unsatisfactory prices if put in packages which present to the buyer an unattractive or unclean appearance. His first consideration, then, after securing a good crop, is to have his crates, etc., clean and bright, and well and symmetrically make, neatness being very important. The matter next in importance is, that the packages be not only full at departure, but that they be also full on their arrival at their destination. They should not, therefore, be filled in a careless, haphazard manner,

hastily nailed up, and hurriedly dispatched. The contents should be so placed, or thoroughly shaken down, whenever the character of the article will permit, as to leave no vacant spaces to be filled out by the jarring received in transit, thus causing an empty space at the top, and permitting the stuff to be bruised by being shaken or rolled about within the package. The contents of the crate should bulge up beyond the level, so that force will be required to press on the cover. A slight bruising of the upper layer is of but little consequence.

Truck-Farming at the South, by DR. A. OEMLER.

STAKE VERSUS UNSTAKED TOMATOES.

The Department recommends tomato growers to stake their early tomatoes, and home gardeners to stake all their plantings.

A report from Antigua shows that in that Island, also, staking tomatoes pays. The yields per plot of staked and unstaked tomatoes were 159 pounds and 85 pounds respectively, and those over two inches in diameter and entirely free from blemishes were 35 per cent. and 29 per cent. respectively.

Agricultural Bulletin of Bermuda, Department of Agriculture, November, 1933.

AGRICULTURAL TOOLS.

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Pruning Saws	**Machetes**

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JAMAICA AGRICULTURAL SOCIETY.

FORESTRY.

We have for several years been advocating efforts at reafforestation to our denuded hill tops. In connection with this we are finding out that there are quite a few economic woods which are commercially valuable which we might use for this purpose. We mentioned the other day, the Bitter Damsel, which is being used in the manufacture of matches locally and for which the factory claims to have a demand of about 30 tons per week. Now we have been reminded by a very reputable firm in Kingston that in 1933 approximately 3,000 tons of Bitterwood was exported as against an average in previous years of not more than 700 tons. This opens a valuable avenue for another kind of economic tree which should be planted wherever suitable. Our Branch Societies especially should discuss these features among their members and we are quite sure profit would result.

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22 Holes............ 2s. 6d. " "
30 Holes............ 3s. 3d. " "

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THE WEATHER.

The weather of 1933 will long be rememberd in this country. It typified two extremes, a particularly dry period for the first half of the year and a particularly wet one for the second half.

A member of this Society, Mr. S. S. Woodward, of Dallas Castle, has kindly shown us his rainfall records for 1933 and we give below extracts from same which will give a very graphic picture of the vagaries of the 1933 weather:

RAINFALL RECORD—DALLAS CASTLE.
Property of S. S. Woodward, Esq.

	Inches Parts.	Rainy Days.
January	.77	2
February	..	..
March	1.37	7
April	.23	3
May	2.61	10
June	24.25	13
July	21.44	10
August	24.70	9
September	20.48	19
October	53.83	15
November	14.99	20
December	4.79	13
	169.46	121

It will be noticed that for the first four months of the year the rainfall amounted to only 2.37 inches with 12 rainy days. The first six months of the year, despite heavy rainfall in June, had only 35 rainy days. The second half of the year gave an enormous total of 140.23 inches of rainfall with 86 rainy days. The highest rainfall recorded in 24 hours was 20.22 on the 16th August, but it does not represent the true fall as the rain gauge overflowed. The month of October registered 53.83, which was more than the recorded rainfall for the entire previous year, 1932. In the last named month, for the first eight days there was a record of 39.99 inches. Certainly we had some vagaries of the weather during 1933.

The rainfall from June onwards has been so abnormal that we reproduce herewith a portion of the Jamaica Weather Report for October, 1933. It is certainly worthy of record.

THE ISLAND—OCTOBER.

The mean monthly rainfall for the Island (28.43 ins.) was again much above the average in all Divisions, and is the highest mean recorded for any month during the past 63 years. This is also the first occasion on which the average rainfall has been exceeded for five consecutive months.

Heavy flood rains, due to the proximity of weather disturbances, occurred during the first and the last few days of the month, particularly on the 2nd and 3rd and the 28th and 29th. Otherwise the rainfall was well distributed, as the mean number of rainy days was 17, the average being 14. The greatest number of rainy days was 26 at Wallingford,

Catadupa and Bethel Town district, all in the West-Central Division, and a large number of other stations had over 20.

The greatest total fall for the month was 69.81 inches at Cedar Hurst in the North-Eastern Division, and the heaviest fall in 24 hours as 14.51 at the same station on the 3rd.

RAINFALL JUNE TO OCTOBER.

Table A attached (page 7) shews the mean rainfall in each parish and the Island for the five months, June to October, compared with the 60-year average, also the mean number of rainy days for the period compared with the 33-year average.

St. Thomas with 106.97 inches and 93 rainy days, was the wettest parish. Manchester with 102.69 inches and 76 rainy days was second, St. Andrew with 99.82 inches and 78 rainy days, was third, and Portland, with 94.89 inches and 87 rainy days, fourth.

The mean rainfall for the Island during this period was 80.03 inches, more than double the 60-year average of 36.37 inches, and the mean number of rainy days was 77 as compared with the 33-year average of 57.

CITY OF KINGSTON—OCTOBER.

In the month of October the total rainfall amounted to 17.98 inches, which is more than double the 60-year average of 7.11 inches. Although this was excessive, it may be mentioned that during the past 63 years greater totals were recorded in October on three occasions viz., 30.67 inches in 1879, 23.45 inches in 1897 and 21.65 inches in 1905. The number of rainy days was 18. as compared with the 49-year average of 11.8 days. The greatest fall in 24 hours was 5.33 inches, on 28tb, owing, no doubt, to the proximity of a weather disturbance forming to the south-east of Jamaica at that time. The upper boundary of Kingston gauged 22.28 inches, with 17 rainy days. Distant rain was observed to northward on 8 days, to NE, SW and West on one day each. South-easterly rain squalls on 2nd, 4th, 5th, 27th and 28th. Heavy squall on 3rd. Heavy sea to the south on 28th, in the afternoon, evidently caused by the weather disturbance in progress to southward.

The mean barometric pressure was 29.805 inches as compared with the 33-year normal of 29.866 inches (0.061) inch below normal. This low pressure was due to the weather disturbances in the vicinity during the early and late days of the month. The highest barometer reading was 29.917 inches on 16th, at 7 a.m., and the laowest 29.601 inches on 29th, at 3 a.m. (hurricane then to SW), corrected for diurnal variation.

The mean monthly temperature, based upon four observations per day, was 78.3 degs., the 33-year normal being 79.4 degs. or 1.1 deg. below the normal. The highest maximum temperature was 90.0 degs. on 19th, and the lowest minimum 70.3 degs. on 11th. Conversely the lowest maximum temperature was 75.4 degs. on 28th, (a rainy day), and the highest minimum temperature was 75.9 degs. on 6th. The greatest range of temperature 17.3 degs. on 22nd, and the least range 3.1 degs. on 28th. The maximum did not exceed 90 degrees.

The mean daily miles of wind registered was 177, an excess of 15% over the 20-year normal of 154. The greatest number of miles of wind in one day was 571 on the 29th, and the least, 80 on the 31st. South-easterly wind commenced early on 3 occasions and continued until after 7 p.m. on 3 days.

Distant lightning at night to north once. Distant thunderstorm to north 9 days, to SW. and NW. on one day each. Sharp local thunderstorm on 3rd.

Mean relative humidity 86%. and the 33-year normal 48%. The

mean 7 a.m. was 90%, and the mean 3 p.m. 77%. Lowest 7 a.m., 82% on 17th, and the lowest 3 p.m. 51% on 19th.

The sky was overcast on the early morning on 17 occasions, and in the afternoon on 23.

The total evaporation for the month was 2.78 inches, and the 10-year average 4.04 inches.

Mean daily number of sunshine hours, 5.2.

WEATHER DISTURBANCES.

There were 3 weather disturbances within barometric range of Jamaica, during the month of October, one of which developed into a hurricane over Western Jamaica. The following are some notes concerning them:—

1. On the 1st October a weather disturbance was located to the south of Jamaica, moving west-north-westward or north-westward. The Kingston barometer at 7 a.m. on that date indicated 29.69 inches, or 0.12 inch below the normal. At the same hour the reading at Negril Point gave 29.68 inches, or 0.13 inch below normal. This disturbance apparently moved north-westerly, for on the 2nd the Negril barometer fell to 29.63 inches, and reports of south-east rainsqualls with heavy sea-swell from the south were telegraphed from Negril. This disturbance, on the 2nd was estimated to be to the south-west of Negril Point, moving around the westward of Negril and curving towards Cuba. There was, evidently, a general low barometric pressure over the entire Caribbean Sea, from the 29th September, but no definite centre could be located until the 2nd. The following notice was issued on 2nd October at 7 a.m., by the Jamaica Weather Service—"From local observations there is apparently a weather disturbance now developing to the south or the south-west of Negril Point, and caution is advised, especially in the western section of Jamaica during the next 30 hours." The U.S.W. Bureau issued a warning on 2nd later on, stating that there was a tropical disturbance probably of increasing intensity central about 150 to 200 miles WSW of Negril Point, moving slowly to the northward, attended by gales. This storm then coursed around to west of Negril on the 2nd, and was reported on the 3rd and 4th to have crossed over Cuba, passing a little to the east of Havana on the 4th at about noon, causing some damage. It proceeded on a north-eastward course after this, and passed near to the south-eastern coast of Florida, U.S.A., on the 5th, thence to the Bahama Islands, and ended in the vicinity of Halifax (N.S.) on the 8th.

Heavy rainfall was experienced throughout Jamaica from 1st to 4th October. South-easterly gales were reported at Negril on the 2nd, recording 48 miles per hour at about 8.30 a.m. The barometric pressure at Negril Point on the 3rd at 4 a.m. shewed 29.547 inches, representing a fall of 0.322 inch below the normal.

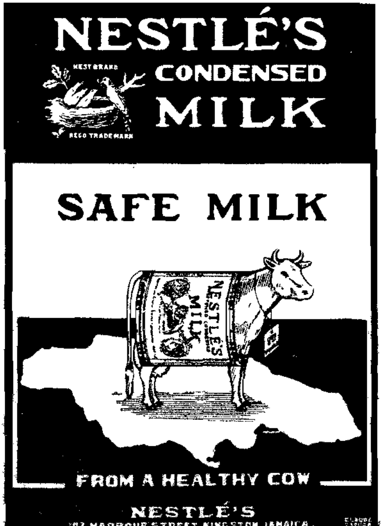
No serious damages in Jamaica were reported, beyond some losses to cultivated areas near to the storm centre.

2. On the 2nd October (at the same time as the existence of the above disturbance) the United States Weather Bureau issued a notice to the effect that another disturbance of slight intensity, was located a short distance to the NNW of Turks Island. On the 3rd its centre was reported as being about 200 miles to the north-north-eastward of Turks Island, apparently moving NNE with increasing intensity. This storm eventually continued into the North Atlantic Ocean.

3. Hurricane of Sunday 29th October.—During the early hours of Saturday, 28th October, local observations pointed to the existence of

a weather disturbance developing to the south-east of Jamaica moving to the west-north-westward. Warnings were promptly issued to all the telegraph offices. This weather disturbance moved WNW-ward or north-westward, and at about 6 p.m. on 28th it was to the south of Kingston, a vessel having passed near to its centre about 120 miles to the south of Kingston. There was a heavy sea swell immediately south of Kingston. The disturbance apparently increased to hurricane force during the night of the 28th and at about 7 or 8 a.m. on Sunday 29th, the centre apparently moved inland of western Jamaica, through the parishes of St. Elizabeth and Westmoreland, and crossed over Hanover to the northside at 6 p.m. on 29th, moving towards Cuba. The storm evidently diminished in intensity after passing the vicinity of Black River and Sav.-la-Mar, where marked destruction of property occurred. Cultivation in the vicinity suffered. Several persons lost their lives owing to falling buildings, and three others were lost in a vessel which foundered off the town of Black River.

The above is merely a preliminary statement concerning this hurricane, as there are numerous reports to hand bearing on the subject, many of which include instrumental observations (barometer readings, wind, etc.), which necessitate tabulating and studying closely. Also the preparation of maps has to be undertaken,. Consequently it will be more expedient to compile a detailed report later on, which will be published as a separate Weather Report similar to the course adopted on the occasion of previous hurricanes in Jamaica.



JAMAICA RAINFALL—JUNE TO OCTOBER, 1933.

Parish.	Mean Rainfall. June.	July.	August.	Sept.	Oct.	Total.	Rainy Days. June.	July.	Aug.	Sept.	Oct.	Total.
	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.						
Kingston ..	12.43	11.08	14.14	9.31	20.04	67.00	13	8	12	15	16	64
St. Andrew ..	14.93	13.49	21.09	13.99	36.32	99.82	16	10	16	17	19	78
St. Thomas ..	20.58	18.52	18.82	16.03	33.02	106.97	21	15	19	20	18	93
Portland ..	16.67	15.39	17.56	12.46	32.81	94.89	20	17	16	15	19	87
St. Mary ..	14.10	6.65	16.07	9.81	24.30	70.93	16	9	14	15	17	71
St. Ann ..	9.68	7.22	13.97	6.76	20.58	58.21	13	8	15	12	16	64
Trelawny ..	12.77	7.69	10.66	6.76	25.11	62.99	15	9	15	13	19	71
St. James ..	12.67	7.00	11.03	10.92	21.26	62.88	17	10	18	19	18	82
Hanover ..	15.40	9.71	12.40	9.58	18.61	65.70	21	14	20	20	15	90
Westmoreland ..	14.71	10.12	11.42	12.90	25.19	74.34	20	14	21	20	21	96
St. Elizabeth ..	10.49	7.86	8.99	11.78	26.30	65.42	13	7	11	14	15	60
Manchester ..	13.65	16.98	15.22	19.81	37.03	102.69	16	10	16	17	17	76
Clarendon ..	14.05	17.91	13.62	12.15	34.72	92.45	16	9	14	16	17	72
St. Catherine ..	15.31	11.37	19.16	9.64	29.58	85.06	15	10	15	16	17	73
The Island* ..	13.76	11.44	14.49	11.91	28.43	80.03	17	11	16	16	17	77
60-year Average ..	6.60	4.76	6.93	7.94	10.14	36.37	33-yr. av. 10	9	11	13	14	57

*Means derived from the monthly Weather Report—average stations only.

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MARKETING NOTES.

Aggregate shipments of citrus fruit.—

A record quantity of citrus fruit has been shipped from South Africa to the United Kingdom this season, the total reaching approximately 2,220,000 boxes, as compared with 1,951,000 boxes last year and the previous record of 1,967,000 boxes in 1930. Shipments of oranges, grapefruit and lemons created new individual records, with totals of 1,923,000 boxes, 259,000 boxes and 20,000 boxes respectively.

Weekly Fruit Intelligence Notes, 13th December, 1933.

LOCAL PRODUCE PRICES.

Annatto	17/- delivered Outport 18/- delivered Kingston
Cocoa—Ordinary	14/- " "
Fair fermented	14/- " "
Estates fermented	16/- " "
Coffee—Good, ordinary	33/- " "
Fine, ordinary	35/- " "
Manchester—B	35/- " "
Manchester—A	37/- " "
Kolanuts—Sound quality, well cured	5/- delivered Outport. 6/- delivered Kingston
Lime Juice	1/- per gallon in new puncheons
Orange Oil—Sweet, sound quality	2/9 per lb. del. Kingston in containers
Sarsaparilla—Well cured, red roots	38/- per 100 lb. nett wts. delivered Kingston
Wax—Pure and clear	7d. pre lb., net wts. delivered Kingston.

MARKETING PROBLEMS MORE URGENT THAN HERETOFORE.

It used to be said a long time ago, that if the farmer could grow two blades of grass where only one grew before, his troubles would be over. To-day, however, it is a case of successfully marketing the one blade of grass and of realizing the full benefits from the sale of what he does produce. It is not so much a case of growing more farm products as it is a case of growing better products and successfully marketing those products along business lines. Some of the difficulties in marketing can be avoided if the producer will apply sound business standards to the marketing of his crop. Sound business practices can do much toward overcoming many of the difficulties in which the producer finds himself in disposing of his farm products.

The Packer (N.Y.)

(Extract from Agricultural Bulletin, of the Bermuda Department of Agriculture, October, 1933.)

PRICES OF BERMUDA TOMATOES IN MONTREAL.

Below will be found prices obtained in Montreal for Government-packed and farm-packed tomatoes. Previous to the sailing of the C.N.S. Lady Rodney on 6th June, very few farm-packed tomatoes had been shipped to Montreal, 72 lugs only in three shipments. From 6th June onwards, the percentage of farm-packed tomatoes increased. At a joint meeting of the Board of Agriculture and the licensed shippers,

held on 23rd May, it was decided by a majority vote to ship farm-packed vegetables to Messrs. Marshall and Morrison, and to continue to ship Government-packed to Messrs. Mutual Brokers, Ltd.

The prices given below were received direct from the Mutual Brokers, Ltd., and through the Associated Shippers from Marshall and Morrison. Messrs. O. R. Loblein kindly corrected the latter to sales returned. The Mutual Brokers' cabled prices also have been adjusted to sale returns through the courtesey of Mr. E. J. Moniz.

PRICES.

Date shipped.	Stea ner.	Government-packed.	Farm-packed.
6th June	Rodney	2,947 lugs Gems at $1.50 144's & larger at $1.75 Average, $1.68	490 lugs at $1.60–$1.85 Average, $1.75
13th June	Cavelier	1,030 lugs Gems at $1.50 144's at $1.75 98's & larger at $2.00 Average, $1.83.	155 lugs Average, $1.75
20th June	Somers	9,456 lugs Gems at $1.60–$1.65 144's at $1.75–$1.85 98's & larger at $1.90–$2.00 Av.rage, $1.87	3,345 lugs Average, $1.75
6th June	Cathcart	2,776 lugs Gems at $1.90 144's at $2.10 98's & larger at $2.25 Average, $2.21	337 lugs Average, $1.75
4th July	Rodney	5,478 lugs Gems at 75 c. 144's at $1.00–$1.25 98's & larger at $1.15–$1.50 Average, $1.15	2,072 lugs Few gems at 65 c. Larger sizes at 75c.–1.00 Average, $0.84

Note averages include prices obtained for leakers.

TOMATO SIZES.

Packed by Department. Season of 1933.

Size.	No. of Lugs.	Percentage of whole.
50's	224	.71
72's	5,371	17.35
98's	16,036	51.81
144's	7,952	25.69
Gems	1,373	4.444

GINGER.

A sample manurial trial with ginger carried out on four randomised blocks at Siyambalagoda in the Yatinuwara district, (Ceylon), showed that definitely significant yield increases are obtained by manuring with sulphate of potash and a complete mixture. The average increase was nearly 80 per cent. over the control in the case of the latter and nearly 40 per cent. with the former. These increases are statistically significant, the probability being over 20 to 1 that the sulphate of potash and over 100 to 1 that the complete mixture are responsible for the increase yields.

The Tropical Agriculturial (Ceylon), May, 1933.

YOUR CULTIVATION WILL SUPPLY ITS OWN MANURE WITH THE HELP OF ADCO

Turns waste vegetation into rich manure.

Material for unlimited manure lies on every hand. Waste vegetation and crop residues of all kinds become rich organic manure by the addition of ADCO and water. ADCO hastens decomposition of vegetation and greatly improves its fertilising value. ADCO manure is not a mere chemical imitation. It is natural manure, rich in humus. Makes poor soil prolific at low cost. ADCO has proved its worth in the hottest, driest and most exacting climates.

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Cedar Doors, Sashes, Cornice, and Mouldings at the following prices :

SASHES, 2' 4" x 4' 6"		10s. per pair
" 2' 6" x 5'		11s. " "
" 2' 6" x 5' 6"		12s. " "
" 3' 6"		14s. " "
FRENCH WINDOWS, 2' 4" x 4' 6"		12s. " "
" " 2' 6" x 5'		14s. " "
" " 2' 6" x 5' 6"		15s. " "
" " 3' x 6'		16s. " "
CHAMBER DOORS, 3' x 7'		26s. each
" " 3' x 6' 6"		24s. "
" " 2' 6" x 6' 6"		22s. "
SQUARE HEAD GLASS DOORS, 3' x 7'		36s. per pair
" " " " 3' x 6' 6"		34s. " "
CIRCLE HEAD GLASS DOORS, 3' x 7'		40s. " "
" " " " 3' x 6' 6"		38s. " "
OTHER SIZES ARRANGED FOR, ALL 1⅜ FINISH.		
P. P. CORNICE, 3"	10s.,	12s. per 100
" " 4"	13s.,	14s. " "
CAVETTA MOULDING, 1½"		7s. " "
" " 2"		9s. " "
BACK MOULDING 2"		8s. " "
" " 1½"		6s. " "
" " 1"		5s. " "
P. P. HAND RAIL, 3' x 4'		45s. " "
P. P. FOOT RAIL, 2" x 4"		40s. " "

Apply at 24-26 East Street, Kingston. 'Phone 2794.

FENTON'S CABINET ESTABLISHMENT.

LOOFA.

By A. L. Neita.

Chinese loofa, or Dish-rag gourd, known in Jamaica, as Scrubber or Strainer, is not cultivated in the Island, as few people know that the fruit is edible. When ripe the skin is taken off and the fibres which form a coarse kind of bag with three compartments is used as a sponge for bathing, and for washing dishes.

The young gourds, however, up to the stage when they will snap like an okra, make a fine dish when fried in oil like an egg plant, and has even a finer flavour.

To prepare, peel thinly, slice across like a cucumber, in quarter inch sections, soak a couple of minutes in salt water, drain and fry crisply

The writer has eaten scores of them.

MEMBERS ADVERTISEMENT.

Citrus Plants: leading varieties, large, healthy, 3 years old, 1/6 each Marsh Seedless Grapefruit; £7 per 100. 1/3 each, Silver Cluster Grapefruit; £6 per 100.

E. M. Clark, Kendal, Shooters Hill P.O.

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POULTRY NOTES.

THE IMPORTANCE OF VITAMINS IN POULTRY FEEDS—VITAMIN A.

Recent researches on poultry diseases are disclosing the extreme importance of vitamins in feeds, fed poultry in confinement. Up to lately emphasis has been nearly entirely confined to the protein, carbohydrates and fats in foods, as being elements in proper amounts, necessary for a balanced ration.

One of our local scourges, roup has been found to shew similar symptoms for two distinct diseases, one, nutritional roup and the other bacterial roup.

It would be of much value and interest to this young and struggling industry to know just what percentage of our roup is nutritional and what percentage is bacterial.

There are two methods that poultry farmers can use in deciding which type they have to combat.

The lack of vitamin A in foods is the cause of nutritional roup. Poultry farmers should therefore take every precaution to ensure inclusion in the ration of sufficient feed material high in Vitamin A and if this is done and roup persists then it would be bacterial roup.

The more positive and prompter method of discovering the presence of nutritional roup is by post mortem. In nutritional roup the gullet of the fowl on being opened shew numerous raised pimples instead of being smooth. In bacterial roup the gullet remains smooth. The *absence of Vitamin A also caused many other more complex diseases*, not as commonly known as roup and also predisposes the birds to severe attacks of intestinal parasites. Vitamin A is the growth and blood forming vitamin so its presence in ample quantity in the feed of chicks and growing stock is necessarily most important. It is fortunate that this Vitamin is to be found in feeds that are readily obtainable in the colony. We give below some feeds which are to be depended on for this element and which should be easily provided.

Cabbage leaves, lettuce leaves, yellow corn, whole wheat, whole rice, tomatoes and whole milk. While it appears in bran it is absent from middlings and it is a notable fact that there is none in biscuit meal and polished rice. Dried milk powder, skimmed milk, and oats possess very little if any.

Poultry feeders when feeding imported mashes, where they cannot be sure that ample yellow corn forms part of the mash should feed at least 50% yellow corn in their grain feed and green feed consisting of cabbage and lettuce leaves preferably. As even those grains possessing the Vitamin A do not possess it in great quantity, the greens feed which do, should not be omitted from the rations. Some simple feeding precautions such as have been outlined will save much trouble and possibly loss and disappointment to poultry keepers.

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The Modern Outfit for Profitable Tilling.

BUILT LIKE A DREADNOUGHT.

"A Vaughan is built to roll and roll where others stall and dig a hole."—Ask for a demonstration.

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BRANCH NOTES.

WESTMORELAND: Holly Hill.—Meeting held 15th December, 1933. Present: E. A. Gunter, President; Instructor W. D. Marr, 1st, 2nd and 3rd Vice-Presidents, Secretary and Treasurer, 6 members and few visitors. Meeting commenced as usual with prayer. Minutes of last meeting were read and confirmed. Correspondence re seeds for distribution was read. Letter to Instructor re abandonment of Holdings Improvement Competition was read. Re distribution of seeds, Instructor advised that a committee be formed, say three persons, viz., the Secretary, 1st and 2nd Vice-Presidents also the the President. A new member was enrolled. President spoke about the benefit that can be got from the Agricultural Society said same has nothing handing out to any one-person but we must always come out to get something from one another which is a co-operative business. The Assistant Secretary asked the Instructor if he could get any plant of the Giant Plantain about which an article appeared in the November Journal to be introduced in the district. Instructor said same is not easy to get at present. Secretary was advised to inform Hon. Dr. Hudson of the Branch's qualification for the goat promised. The Instructor in his address about Holdings said he would like to know that everybody was trying to get their own holding. He spoke of the method of lining out a field which not only adds to the appearance but is very conducive to good plants. On behalf of the Branch a hearty vote of thanks was tendered the Instructor. Mr. A. G. Smith gave a very interesting account of a man who had three acres of land and how he handled same. Mr. H. Ricketts speaking about the lining out of a field said, same is not an easy thing from the fact you cannot always get an even surface. He spoke most emphatically about planting, mentioned the time he has been working and told of his methods in detail. Instructor said he quite agreed with Mr. Ricketts' views. Said the rough lands should be worked with more pains to get more out of it. The Roll Call and the National Anthem brought a very interesting meeting to a close.

Darliston P.O. F. J. Cooke,
Secretary.

Blauwearie.—Meeting held 13th December, 1933. Present: Rev. R. C. Gordon, Chairman; J. A. Graham, Esq., Agricultural Instructor; 12 members and several visitors. After the opening prayer the Chairman welcomed all, encouraging the members to stick to the Society. He recounted some of the good that had come to the district through the efforts of the Branch. Among these are the Lock-up Dispensary, Post Office at Friendship and protection of the sources of water supply. The minutes of the previous meeting were read and confirmed. Arising therefrom: the Instructor informed the house that the seeds would soon be here and would on arrival be distributed. This information allayed fears as the people had prepared their lands and cannot get any seeds to buy in this area. Letters were read from the Parent Society re Half-Yearly meeting and the Nethersole Presentation Fund. No delegate was appointed, while the Secretary was left to deal with the other matter. Next followed the Report on the meeting of the Associated Branches. Messrs Ramsay and McKenzie covered the ground for which they were heartily thanked. Authorized Persons reported O.K., and promised to patrol more. The keeper of the boar reported that he is very active. Water Supply was discussed, when the house was told that Dr. Isaacs M.O.H., had visited the Daley Spring along with the C.S.I., their impressions being very favourable. Steps will therefore be taken to protect the Spring as a Public Supply. Instructor dealt at length with co-operation—bananas are sold thereby hence he suggested that yams may be treated on similar lines.

He also advised the growth of timber trees which will be a boon in days to come. The Law dealing with the Loans from the Government was read and discussed to the satisfaction of the members, who intend to make use of the facility. After Roll the National Anthem was sung and terminated the meeting.

Friendship P.O. J. O. RAMSAY,
Hon. Secretary.

PORTLAND: Belle Vue.—Meeting held 13th December. Present were: the Instructor, Mr. W. Z. Buckley, Mr. John Somers, President; the Secretary and a goodly number of members and visitors. Meeting opened with prayer. The minutes of the last meeting were read and adopted and matters arising therefrom discussed. Discussion re the Guava River showed that it would be put on the Parochial Board Estimates, 1934-35, and that Belle Vue's contribution would only be £35. The members promised to raise this by March, 1934. Correspondence from the Parent Society was dealt with. The Secretary was appointed delegate to the Half-Yearly General meeting. The Authorised Person's report showed no arrest. The Instructor then gave an inspiring address. The topics were Economy, making use of Opportunities, the Citrus Industry and Catch Crops. He spoke of his retirement and encouraged the members to support the Society. The Secretary and other members expressed their regret at the loss that will be sustained by the Branch by his coming retirement. The meeting terminated by the National Anthem.

Fellowship P.O VICTOR V. BROWN,
Secretary.

Craigmill.—Meeting held 5th December. Present: Messrs. J. T. Lowe, President; D. E. Baugh and Mrs Mrs. M. Sykes, 1st and 2nd Vice-Presidents; G. W. Wray, Instructor; seven other members, several visitors, and the Secretary. The meeting was opened with prayer. The minutes of the last meeting were read and confirmed, and business arising from them dealt with. Correspondence was read and discussed. The Secretary was elected to represent the Branch at the Coming Half-Yearly General meeting of the Society. The one Authorised Person present had nothing to report. His equipment was presented for inspection, and was in good order. The Instructor in his remarks, encouraged the members to make renewed efforts to restore their damaged fields, and gave various reasons why immature fruit should not be marked. He also spoke on Coffee pruning, urged speciall attention in spite of the present low prices, and gave information re short topped and tall coffee trees. He terminated his remarks by wishing all the season's greetings. Several members spoke appreciatively of the Instructor's remarks, for which a vote of thanks was accorded him. The meeting adjourned.

Buff Bay. (REV.) T. LAWRENCE,
Secretary.

ST. CATHERINE: Content Gap.—Meeting held 16th December. Present: Mr. L. M. Lyttle, presiding; six other members and the Assistant Secretary. The meeting opened with prayer. Minutes of the last meeting were read and confirmed. As matters arising therefrom: Mr. L. M. Lyttle was appointed delegate to the Half-Yearly General meeting. Correspondence was dealt with re Relief work and seeds. Minor matters were dealt with. The Roll Call was taken; the meeting was brought to a close by the singing of the first stanza of the National Anthem.

St. Peters P.O. F. A. WILSON,
Asst. Secretary.

O'Mealley.—Owing to the inclemency of the weather no Branch meeting could be held hitherto. On the 28th, in spite of light showers, the officers and interested members turned up, numbering 24 and also some visitors. The President opened meeting with a short prayer. Mr. G. A. Buttler from Lucky Valley was given information as to how a Branch should be formed. The meeting decided to send a delegate to the Half-Yearly General meeting and funds to defray his expenses were duly provided. After discussion on the duties of Authorised Persons, the Secretary gave these officers some useful instructions according to the rules. The Secretary was asked to write the Parochial Board about obstacles on Road No. 12b, which are very dangerous to lives and properties. Mr. E. C. Coombs gave a very valuable address as to what we must do to meet the money and food shortage. He was thanked. Other matters were dealt with and the meeting adjourned.

Harker's Hall P.O. S. H. ANDERSON,
Secretary.

Phillipsburgh.—Meeting held 11th December. Present: 10 members and 4 visitors. Teacher Leslie was voted to the chair. Meeting was opened with prayer. The Assistant Secretary read letter from the Jamaica and Empire Trade Exhibition and Fair. This was discussed at length. Assistant Secretary was asked to send a reply. Correspondence re Half-Yearly General meeting and the Nethersole Presentation Fund

was submitted. The dismissal of Authorised Person E. G. Campbell came in for a long discussion and correspondence on this subject was taken. It was moved, seconded and carried that letters be sent to several gentlemen asking them to visit the Branch at the next meeting. The motion re the long pending concert to come off in aid of the Branch, was fully gone into, and it was decided that it should be held early in the New Year. After other matters were dealt with the Roll was called and the meeting ended in the usual way.

Redwood P.O. C. B. Stanbury,
Asst. Secretary.

ST. MARY: Wood Park.—Meeting held 13th December. Owing to the incessant rains, the attendance was small. Mr. W. S. Robinson, President, occupied the chair. Mr. Baxter, General Secretary attended the meeting by special invitation of the Branch. He was accompanied by Mrs. Baxter and two sons. Among those present were Messrs. S. M. Roche, 1st. Vice-President; E. L. Silvera, 3rd Vice-President; L. A. M. B. Coke, Instructor; A. B. Champagnie, M.P.B.; L. L. Simmonds, Assistant Secretary; eight other members and the Secretary. Messrs. V. A. Bailey and G. Roche members of Mt. Angus Branch were also present. The Chairman called the meeting to order and after the minutes were read and confirmed, he welcomed all present and gave a special welcome to Mr. Baxter and his family. Mrs. Stuart, the Treasurer, sent an apology for absence. The Secretary mentioned that he had sent on Resolutions for Half-Yearly meeting of Associated Branches. He had also written Mr. Campbell as directed. The Chairman complained that very few reports of the Branch were published in the Journal and asked the General Secretary to speak on the matter. He said that it was impossible to publish the Reports of all the Branches but that each Branch got its proper turn. He further stated that the chief reason for sending up reports was not for publication but to enable the Board of Management to see that the Branches were working on correct lines. Mr E. L. Silvera gave a report of the Deputation to the Director of Agriculture on the subject of Panama Disease. Mr. Roche and the Chairman also spoke on the same subject. Mr. Baxter called on to give his address, spoke on Co-operation and pointed out how planters had the power in their hands to increase their cash returns. He also stressed the great need there is in the Island for agricultural credit. He said the two most crying needs of Jamaica are agricultural education and agricultural credit. Mr. Coke moved a hearty vote of thanks which was seconded by Mr. Bailey, supported by Mr. Silvera, and conveyed by the Chairman. Mr. Baxter suitably replied. Mr. C. L. A. Stuart was elected delegate to the Half-Yearly General meeting. The report of Authorised Persons was taken and as it was getting late the balance of the Agenda was deferred and the meeting brought to a close with the singing of the National Anthem.

Pembroke Hall. C. L. A. Stuart,
Secretary.

Carron Hall.—Meeting held 6th December, 1933. Present: the Instructor, Mr. J. A. Banks, the President, 1st Vice-President, Secretary and twelve other members, few visitors and some scholars from the Elementary School. Chairman began the meeting byprayer after which the minutes of the last meeting were read and confirmed. Letters from the Parent Society were read and discussed. Re Representation to Mr. J. M. Nethersole, C.B.E., this Branch was not in a position to send up a donation. Mr. E. B. Johnson, 1st Vice-President was appointed delegate to the Half-Yearly General meeting. The following delegates were appointed to the Highgate Conference:—Messrs. R. Burnett, A. Lopez and Geo. Thomas. Authorised Persons reported on work done during the previous month. It was again agreed that the names of Messrs. David Francis, George Duncan, Jas. L. Grant and Ezekiel Jones be sent up to the Parent Society to be dropped for non-attendance, and neglect of duty. At this juncture the Instructor gave his address. He laid special emphasis on the four menaces of bananas viz.:—Panama Disease, drought, storm and the banana borer. He also pointed out the necessity of planting supplenmentary crops. The President, Rev. Jas. MacNee was in line with his remarks. He was of opinion that we should try something new. Re timber seedlings, the matter is receiving the attention of the Parent Society. After the Roll Call the meeting terminated with the singing of the National Anthem.

Carron Hall P.O. H. A. White,
Secretary.

Marlborough—Meeting held 26th of Dec-mber. Present: Mr. Z. Ffrench, President; six others and Mr. D. A. Ford, Secretary. Meeting opened with prayer. Minutes of last meeting were read and adopted and some matters arising therefrom discussed. Meeting decided to defer important matters from the minutes for next meeting. Correspondence from Secretary of the Jamaica Permanent Exhibition Society, Ltd., read. Meeting instructed Secretary to reply expressing their sympathy, and further to state that owing to drought, storm, floods and otherwise, they were not in a position to send up exhibits. Mr. Henry Williams the only Authorised Person at the meeting reported all

correct. His badge and handcuffs were in good order. Secretary read extract from November Journal. A vote of thanks was given him. Other matters were discussed. Roll Call taken. The Chairman made his closing remarks, wishing members a prosperous New Year, and asked for greater interest in the Society. Meeting ended with the National Anthem.

Pear Tree Grove P.O. D. AUGUSTUS FORD, Secretary.

Oxford.—Meeting held 19th December. There were present the President, Secretary and nine other members. The meeting was opened with prayer, followed by reading and confirmation of the minutes. Matters arising from the minutes were dealt with. The Secretary was asked to send thanks for cane tops. Owing to the excessive amount of rainfall nearly all the cane tops died. The members are desirous of getting a fresh supply in March. "Bridge for the Girl and Boy River": It was decided that a copy of resolution re bridge for the Girl and Boy River be sent to the Parent Society, and one to the representative for the parish. Mr. E. A. Brown was appointed delegate for the Half-Yearly General meeting. It was agreed that each member should give a shilling to defray the delegate's expenses for the meeting. A committee was appointed to collect this. The meeting terminated with the singing of the National Anthem.

Free Hill P.O. (MRS.) R. A. THOMAS, Secretary.

Central St. Mary—Meeting held 7th December. Present: the chairman Mr. F. A. Williams, 1st Vice-President, C. C. Lee, Secretary, Mr. J. A. Banks, Instructor; 8 members and 3 visitors. The minutes were read and confirmed. Correspondence: (a) from Parent Society; (b) from Secretary Empire Trade and Exhibition were dealt with. One new member joined this branch. Reading and discussion on transplanting took place. The subject of the Instructor's address was pruning of coffee. Mr. C. C. Lee was elected delegate to the Half-Yearly General meeting. Questions were asked on the necessity for the one root system. Chairman made his closing remarks. The National Anthem was sung and the meeting adjourned.

Richmond P.O. C. C. LEE, Secretary.

Epsom.—Meeting held 6th December. Present: Mr. Wray the Instructor, Mr. Gibson, President; the 1st and 2nd Vice-Presidents; Acting Secretary, 10 other members and 3 visitors. Minutes of last meeting were read. Correspondence was read and adopted. Re Exhibition and Fair, the Secretary was instructed to write the Secretary of the Exhibition promising the Branch's support. Re Land Settlement Scheme the Secretary was asked to correspond with the Parent Society. Three Authorized Persons present, reported on their work. Two visitors became members. The Instructor visited Mr. W. Hinds' holdings, and gave hints regarding staple crops. The Instructor and acting Secretary gave hints to Authorised Persons re their duties. The meeting terminated with the National Anthem.

Annotto Bay P.O. LEVI S. JOHNSON, Acting Secretary.

ST. ANDREW: Hall's Delight.—Owing to the continuous rains since August and the absence of the Secretary for 2 months through illness, no meetings were held from July. A special meeting was convened on the 9th December. Seven members and 2 visitors were present. Matters arising out of the July minutes were discussed namely: the matter of the Bridges. Although there were rumours that the matter was being looked into and that some of the materials were ready to be transported to the respective sites, the Branch has not been officially informed in spite of the fact that several letters were sent to the Corporation on the matter. Correspondence regarding the Trade and Empire Exhibition was dealt with, and the members expressed their regret at not being able to co-operate with the Management as all seeds and minor crops that were in preparation have been destroyed by the constant heavy rains since June. Delegate fees were discussed and Mr. J. J. Higgins was nominated to represent the Branch at the Half-Yearly General meeting. The meeting terminated with the singing of the National Anthem.

Mavis Bank P.O. B. A. HENRY, Secretary.

Rock Hall.—Meeting held 18th December. Present: Mr. A. P. Hanson Agric. Instructor, Mr. E. J. Gregory, President; 7 members 1 visitor and the Secretary. The minutes of the last meeting were read and confirmed. The unfavourable state of the weather during many months prevented the regular monthly meetings being held. The question of free distribution of seeds was discussed. The question of a school was also gone into. The Instructor's address was based on Unity. Correspondence from the Parent Society

was read. The delegate to the meeting of the St. Andrew Branches Associated gave his report. Three Authorised Persons were present, and reported all correct. After dealing with minor matters the meeting terminated with the singing of the Doxology, after which the Benediction was pronounced.

Red Hills P.O. (Mrs.) B. HESLOPE,
Secretary.

ST. THOMAS: Hagley Gap.—Meeting held 23rd December, 1933. The minutes of the July meeting were read and confirmed. The meeting was not largely attended. Many important matters were dealt with. The President brought forth the matter of getting a place for the doctor who is to visit Hagley Gap to attend to the medical needs of the people. A place having been secured the meeting authorised him to push on the matter. The President stated that he can secure a place for the Dental Clinic. The meeting authorised him to press on with the matter. Postal service also came in for discussion, viz.:—the Hagley Gap to Cedar Valley Service. The meeting suggested that an earnest letter be sent to the Hon. Ehrenstein asking him to take up the matter with the Postmaster. The matter of the presentation to J. M. Nethersole, Esq., came up for discussion. The meeting was not in sympathy with the movement as Mr. Nethersole has no connection with agriculture and his financial position is one hundred times better than ours. The market shed for Hagley Gap was also stressed; the Branch feels that it is a pressing need and should be pressed with all vigour. Authorised Persons gave their reports. They reported difficulty in collecting payment for work done. It was decided that the attention of the Parent Society should be called to this matter. The meeting after discussing the matter of larceny of sugar canes by Mr. Chas. Henry, a member of the Branch, decided that he should be excluded from the Branch for this act of larceny, the Secretary to notify him of this decision. It was decided that Mr. Aaron Anderson, an Authorised Person, having failed to comply with the statutory regulations, and also those of the Branch, should be struck off the list of Authorised Persons. The Secretary was asked to notify Mr. Anderson of this and write to the Parent Society officially on the matter. Authorised Persons H. B. Gilroy and N. B. Clarke, reported an arrest each. The President and the Secretary reported that they sent Instructor McLaren a letter of condolence at the death of his wife on behalf of the Branch. The meeting thanked them.

Hagley Gap P.O. J. B. HEYWOOD,
Secretary.

ST. ELIZABETH: Middle Quarters.—Meeting held December 7th, 1933. Present: Messrs. N. C. Lewis, President; J. N. Salmon, 2nd Vice-President; Mrs. C. L. Hitchman, Assistant Secretary; G. R. Graham, Agricultural Instructor; H. L. W. Wilson, Secretary; Sergeant Panton who attended to address the Authorised Persons, and thirty members together with scores of visitors; the largest attendance since the formation of the Branch. Following the opening of the meeting by prayer, the President expressed pleasure at the large attendance, and expressed the hope that many of the visitors would become members of the Branch. Minutes of the last meeting were read and confirmed. Arising therefrom the delay of the free distribution of seeds was discussed. Correspondence was read and dealt with. Sergeant Panton outlined to the Authorised Persons their responsibility and completed his address by answering various questions put by the Authorised Persons and the Instructor. A vote of thanks was unanimously accorded the Sergeant and it was decided that a letter of thanks be sent to the Inspector of Police, thanking Sergeant Panton and himself for their kind aid. A concise report was given by the Secretary, who was one of the five Delegates who attended the Half-Yearly Meeting of the Associated Branches. The Secretary emphasized the necessity for increased membership. The Instructor spoke relative to the best breed of pigs to be reared. The Secretary also informed the Branch of plans to ascertain the service of a boar of mixed Poland China and Berkshire owned by Mr. Farquharson through which members of various Branches could get a better breed of pigs in the district. Mr. Lewis then hinted at his efforts to introduce a better breed of goats in and around this area and while members of the Branch would enjoy benefits free, non-members would have to pay a fee. Much fun and laughter ensued on the rendering of a dialogue and two recitations by members of the Juvenile Branch. The Juvenile Branch and Secretary were thanked for giving the Branch their support in this way. A committee was appointed to deal with the matter of the Loan Bank. It was unanimously agreed that a letter be sent to the Custos asking that a committee be appointed to arrange for relief of the sufferers through the recent storm of the Middle Quarters District. It was also agreed that the Hon. Member for the parish be invited to attend the meetings frequently. The meeting then terminated by the singing of the National Anthem.

H. L. W. WILSON,
Secretary.

ST. ANN: Ocho Rios Branch.—Special meeting held December 5, 1933, to discuss sending of Delegate to the Half-Yearly General Meeting. The Rev. A. E. Brown

acted as Secretary. By a majority vote, Mr. Little was elected to represent the Branch at the General Meeting. Mr. Little moved that the Resolution relative to the Travelling Licenses granted to Produce Buyers, be sent up to the General Meeting. The motion was seconded and carried. The President expressed the desirability of the Jamaica *Agricultural Society establishing local citrus nurseries through the Agricultural Instructor.* He mentioned that he had offered facilities to the Instructor with this aim in view, but that little was done. He thought, therefore, that it would be good to take up the matter with the Parent Society. After much discussion, the following motion was passed: "Resolved that this Branch think it desirable that the Parent Society, establish through the Instructor, a citrus nursery in this area to supply the needs of the Ocho Rios, Hyatt's Field and Beecher Town Branches." It was further decided that a copy of this Resolution be sent to the Secretary of each of the neighbouring Branches, for discussion at one of their meetings. After minor matters were dealt with the meeting closed with the National Anthem.

Ocho Rios P.O. B. A. JACKSON,
Assistant Secretary.

MANCHESTER: Old England.—Meeting held 19th December. Present: Mr. Fred. Williams, 3rd Vice-President, who took the chair, seven members and the Secretary. The Chairman opened the meeting with prayer, after which the minutes of the last meeting were read and confirmed. As matters arising therefrom, Mr. F. S. Mullings said that other mixtures can be used apart from "Emulso" for spraying. He mentioned Bordeaux, as one, also jeyes, soap and kersosene oil, this latter he said will also kill black ants. A hole can be made in the nest, and the spray directed on it. Re the purchase of a shear for the Branch, Mr. Mullings thought all members should subscribe, although a few including himself have their own as by so doing it would encourage other members, and assist to bring in outsiders. Correspondence was taken. It was moved, seconded and carried that a letter be sent to the Sergeant-Major of Mandeville asking him to come over, or send a Constable to give a lecture to the Authorised Persons. Mr. Mullings asked that the Treasurer inform the Branch of its financial standing, in order to find out if any assistance could be got therefrom to purchase the shear and saw. The report of the Delegates to the Half-Yearly Meeting of the Manchester Branches Associated at Grove Place Farm was received, and the Delegates thanked. The Roll was called, and the meeting terminated with the singing of the National Anthem.

Old England P.O. C. P. WATSON,
Secretary.

Royal Flat.—Meeting held 13th December. Present: N. Nash, President; R. S Biscoe, M.P.B.; the Secretary, Treasurer, 12 members and 3 visitors. Meeting opened with prayer. Minutes of the last meeting were read and confirmed. The Delegates to the Manchester Branches Associated reported exhaustively, and they were accorded a hearty vote of thanks. The Treasurer's report was received and adopted. The Secretary was appointed delegate to the Half-Yearly General Meeting. One Authorised person present reported O.K. Mr. R. S. Biscoe who was asked to speak confined his very inspiring talk to the means and ways of acquiring holdings at five properties he could put at the disposal of settlers on very attractive terms. Many members commented on his proposition. The National Anthem terminated the proceedings.

Williamsfield P.O. H. LISTER JOHNSON,
Secretary.

ST. JAMES: Roehampton.—Meeting held 9th December, 1933. Present: Messrs. J. N. Tharpe, President; W. Plummer, Vice-President; W. E. Bennett, Treasurer; five other members, two visitors, one of whom was afterward elected a member, and the Secretary. The meeting was opened in the usual way. The minutes were read and confirmed. Arising therefrom the Secretary said the petition re Ramble Road was prepared in the rough for the approval of the meeting. Re distribution of seeds and plants by the Agricultural Society, the Secretary said that be could not make any definite statement. The President referred to houses blown down or damaged by the recent hurricane, and made it clear that the Agricultural Society could do nothing in that matter. The Parochial Board would look after that. Correspondence was read and dealt with. Re the formation of an Association of Branches in St. James, the Branch is in favour, but thinks the matter should be delayed. The Secretary was appointed a delegate to the Half-Yearly General Meeting. The meeting expressed its deisre to know if coffee condemned, as unfit for export by the Produce Inspectors, could not be saved and sold locally. Much of the coffee sold locally was of inferior quality—quality that would not be allowed to be shipped. A new member was elected. The meeting was brought to a close with the singing of the National Anthem.

TRELAWNY: Wakefield.—Meeting held December 6th. Mr. J. W. Thomas, presided. The new Agricultural Instructor Mr. F. W. Kelly, and many members were present. Before the meeting began, the Instructor demonstrated at Mr. Bliss' holding. The Chairman welcomed the Instructor. He suitably replied. Minutes of last meeting were read and confirmed, and matters arising therefrom were dealt with. Correspondence was also read and dealt with. Two Authorized persons were present, and reported all correct. It was decided, that by reason of the storm, this Branch would not be able to send exhibits to the Jamaica and Empire Trade Exhibition and Fair. It was decided to inform the Parent Society, that this Branch was out of funds and could not support the movement for a presentation to the Administrator General. It was also agreed to thank the Board of Management for their action re free distribution of seeds to this storm-stricken area. The Instructor lectured on afforestation. He also touched on drainage. He promised to visit certain members' holding next meeting day. The meeting adjourned.

Deeside P.O. E. S. Bliss,
Secretary

Other Reports Received.

Branch.	Date of meeting.	Attendance.	Business dealt with.	Secretary.
St. Mary.				
Albion Mountain	7.12.33	9	Appointment of delegate to general meeting. Roads. Address by Instructor Banks.	J. H. Petrie
Baxtern Mtn.	19.12.33	6	Roads—Authorised Persons' Reports	R. J. Lawson-Ricketts
Clonmel	11.12.33	23	Appointment of delegates to Parish Assoc. meeting and general meeting. Debate on "One Root System" (Panama Disease). Addresses by Supervisor Carrington and Instructor Banks.	J. R. Ebanks.
Wallingford	8.12.33	12	Water supply. Address by Mr. Z. Tucker.	Acting Secretary
Clarendon.				
Crooked River	8.12.33	23	Addresses by Supervisor Carrington and Instructor Shirley.	A. M. Smith
Mt. Providence	12.12.33	12	Bird Protection. Address by Instructor Shirley.	G. S. Neita
St. Catherine.				
Content ..	23.12.33	..	Addresses by Supervisor Carrington and Instructor Martin.	G. G. Planter
Hampshire ..	26.12.33	over 16	Citrus nursery. Concert. Report of delegates on meeting of parish Assoc. of Branches.	E. A. L. Rowe
St. Ann.				
Hiattsfield ..	13.12.33	9	Appointment of delegate to General meeting. Address by Instructor Atkinson.	S. Geo. Jackson
Manchester.				
New Green ..	7.12.33	over 20	Road. Seed distribution. Lecture by Instructor Darby.	E. A. Grant
Trelawny.				
Ulster Spring ..	11.12.33		Road. Banana Runners. Address by Instructor Kelly.	I. C. Williams
Wilson's Run ..	5.12.33	13 members several	Road. Address by Instructor Kelly.	Miss G. E. Bailey

GREAT BRITAIN IS BURSTING WITH MONEY.

Two Thousand Million Pounds awaiting Investment at Present Time.

Great Boom Ahead.

Now is the time for Borrowers and Lenders to regain old courage.

London, Oct. 22.—The staggering figure of more than £1,919,-400,000 is locked up, on deposit, in the nine clearing banks of Great Britain.

In other words, the country is bursting with money for investment—and the investors do not know what to do with it.

Soon much of it must be released—to quicken industry and find work for thousands.

Not even the reduction of the deposit rate of interest to one-half of one per cent has been able to keep the figure down.

Expanding Trade.

At the Bank of England the deposits of the banks themselves are more than £110,000,000 nearly £30,000,000 more than a year ago.

In the Post Office Savings Bank, which pays 2½ per cent., total deposits are £31,918,000—more than £24,584,000 than a year ago.

Yet trade is expanding—and expanding trade should mean a demand for more finance.

Last month the bankers' advances to customers reached a lower level. Companies in need of new money have not approached the public and yet, apparently, have not drawn on their bankers.

Willing Money.

They have been content to finance advancing trade cautiously from their own resources—or have hesitated to expand.

But there is plenty of willing money waiting for investment in sound concerns.

The only new issues that have not met with an overwhelming reception for some time past, with the exception of highly speculative ventures, have been certain municipal loans whose yield was too low.

Confidence—the one essential to linking the idle millions to industrial uses—is palpably firmer now than it has been for nearly five years.

Ready for the Flood.

Unless some fresh catastrophe smites the world—and there seems no reason at the moment why it should—this winter or early spring should see a flood of new issues made for sound enterprise.

When that flood comes, the response will be overwhelmingly good.

Both borrowers and lenders have suffered too long from pure funk. It is high time they regained their old courage and their old confidence in each other.

THE JOURNAL

OF THE

Jamaica Agricultural Society.

The more people do the more they can do; he who does nothing renders himself incapable of doing anything; while we are executing one work we are preparing ourselves for undertaking another.

Vol. XXXVIII. FEBRUARY, 1934. No. 2.

BOARD OF MANAGEMENT.

The regular monthly meeting of the Board of Management of the Jamaica Agricultural Society was held at the office of the Society, 11 North Parade, Kingston, on Wednesday the third January, 1934, at 11.30 a.m. There were present: The Hon. T. J. Cawley, First Vice-President presiding, Rev. W. J. Thompson, Second Vice-President, Mr. A. C. Barnes, Director of Agriculture, *ex officio*, Messrs. C. O. Cover, H. E. Lewis, T. P. V. McDaniel, U. Theo. McKay and D. D. Phillips, P. St. L. Bacquie and L. L. Carrington, Supervisors of Instructors and the Secretary, Glaister Baxter.

Apologies for Absence.—

Apologies for absence were submitted from Major G. B. Pease, Messrs. W. Harper Watson and T. R. Williams

The Secretary read letter from Mr. Williams tendering his best wishes to the Board for the New Year, and telegram from Mr. Watson advising that a motor car accident prevented his attendance and asking that his resolution with reference to gratuity for Mrs. Barclay be dealt with.

Mr. Cover supported by Mr. McKay, extended their good wishes for the New Year to the Vice-Presidents, members of the Board and the members of the staff.

The First Vice-President replied suitably.

Rev. Mr. Thompson moved, seconded by Mr. H. E. Lewis, that the congratulations of this Board be extended to Mr. G. Seymour Seymour, M.L.C., O.B.E., on his elevation to the Most Excellent Order of the British Empire.

The motion was unanimously carried.

Confirmation of Minutes of the previous Meeting.—

The Secretary stated that the Minutes had been circulated and they were taken as read. Mr. H. E. Lewis then moved, seconded by Mr. D. D. Phillips, that the minutes be confirmed.

This was carried.

Matters arising out of the previous Minutes.—

(a) *Estimates—Report of Deputation.*—The Secretary presented the following report of the deputation appointed to wait on His Excellency with reference to the Estimates.

2nd January, 1934.

"To the Board of Management:

Gentlemen,—Your deputation appointed to meet His Excellency the Governor to discuss the question of the Estimates for 1934-35 did so on the 8th ultimo. The only member of the deputation attending was the Hon. T. J. Cawley, and the Secretary was in attendance.

The discussion resulted in His Excellency expressing his regret that he was unable to submit to the Legislative Council any amount in excess of £9,500 for the general subvention and £500 for the Bee Industry subvention. The usual £250 for Prize Holdings would not be submitted. This represents a shortage of £1,250 on the amount asked for on the general subvention and £250 on the Prize Holdings subvention. His Excellency pointed out that the sum of £450 Seed Department profit which it was our intention not to count on as it had not been definitely realised, should be counted on as it was customary to budget for expected revenue before they were realised."

Mr. Cawley then gave more details as to what transpired with regard to the Estimates.

A discussion ensued and Mr. Cover moved that a revision of the Estimates be made by the Secretary.

The Secretary explained that this should be done by the Board.

Mr. McKay then moved that in view of the reduction of the subvention asked by the Government that the Board of Management meet in Committee to revise their Estimates.

This was seconded by the Director of Agriculture and carried.

(b) *Seed Distribution—Letter from C.S.O.*—Letter No. 4510/33 from the Colonial Secretary dated 12th December, 1933, was read authorising the expenditure of £25 of the £500 granted for free seed distribution for distributing seeds to persons in the rural area of St. Andrew whose cultivations were destroyed in the recent storm.

This was noted.

(c) *Resolution from Mr. Harper Watson re Compassionate Allowance for Mrs. Barclay.*—Mr. McKay then moved on behalf of Mr. Harper Watson the following motion:—

"That a compassionate allowance of £100 be voted for the widow of the late John Barclay, O.B.E., former Secretary of the Jamaica Agricultural Society, from the funds of this Society."

After discussion it was decided to defer this motion until such time as Mr. Watson could be present.

(d) Mr. McKay asked that the motion standing in his name with reference to sugar cane farming be deferred.

This was agreed to.

(e) *Report from Bee Instructor re requests from R. A. Hay and J. C. Sangster re supply of Queen Bees.*—Report from Bee Instructor with reference to applications from Mr. R. A. Hay asking for credit for Italian queen and also letter from Mr. J. C. Sangster asking for reduction of price of queen bees was read.

After discussion the Board decided that no credit would be given and that for lots of twenty queens, two shillings each would in this particular instance be charged.

(f) *West Indian Fruit and Vegetable Conference.*—The Secretary stated that he had obtained copies of the recommendations and proceedings of the West Indian Fruit and Vegetable Conference as suggested by Mr. C. O. Cover and had also published the recommendations of the Conference in the December issue of the Journal.

The Director of Agriculture spoke on the subject and moved,—"That the Board of Management of the Jamaica Agricultural Society endorse the recommendations of the West Indian Fruit and Vegetable Conference, and inform the Government of the fact."

This was seconded by Mr. Thompson and supported by Mr. McDaniel.

Mr. Phillips moved as an amendment, seconded by Mr. H. E. Lewis, that the matter be deferred for another month in order to allow the members of the Board to carefully go through the report.

The amendment to the motion was put to the vote and lost and the substantive motion was then voted on and carried.

(g) *Protest from Mr. McKay.*—The following protest was handed in by Mr. U. Theo. McKay.

"I protest against the resolution passed by the Board of Management on Wednesday December 6th 1933, making a grant to the Parochial Board of Manchester for the amount of 10/- to purchase seeds on the following grounds:

(1) Being a financial question notice of motion should have been given before the matter was dealt with.

(2) This item not being on the Agenda the members of the Board of Management were taken by surprise and those who might have attended to express their views on the matter were prevented doing so as they were not aware.

(3) The Motion was therefore unconstitutional *ultra vires* and should not stand."

The protest was received and recorded.

(h) *Statement by Secretary.*—The Secretary made the following statement:—

"The seed distribution with the exception of seed corn which has purposely been delayed is very nearly through. It became necessary to import a further small parcel of red peas due to the later inclusion of St. Andrew in the distribution.

All resolutions and correspondence have been dealt with according to the directions of the last meeting of the Board."

The meeting then adjourned for luncheon and on the resumption there were present: Hon. T. J. Cawley, in the chair, the Director of Agriculture, Messrs. P. W. Sangster, C. O. Cover, T. P. V. McDaniel, U. Theo. McKay, D. D. Phillips and Mr. H. E. Lewis, the two Supervisors of Instructors and the Secretary.

Statement of Accounts.—

(a) *Statement for November.*—Statement of Accounts for the month of November which had been circulated was placed before the Board.

Replying to a question from Mr. Cover the Secretary said he hoped the amounts budgeted for Advertisements in the current Estimates would be exceeded.

Mr. Cover pointed out that two items were in excess:—Secretary's Travelling and Instructors Contingencies.

The Secretary explained that the excess in the travelling allowance had been authorised by a special resolution of the Board.

The Board directed that these Estimates be brought up at the next meeting for excesses to be authorised.

(b) *Statement for December.*—The Statement of Accounts for December as shewn below was laid on the table.

Statement of Accounts for December, 1933.

Receipts.	Estimates. £	s.	d.	December. £	s.	d.	Forward. £	s.	d.	Total. £	s.	d.
To Subscriptions	150	0	0	1	17	6	139	17	7	141	15	1
Affiliation and Journal Fees	150	0	0	0	15	6	149	19	0	150	14	6
Advertisements in Journal	150	0	0	0	3	6	20	16	6	21	0	0
Sundries, Bank Interest	20	0	0	2	13	2	17	13	11	20	7	1
Government Grant	8,500	0	0	708	6	8	5,666	13	4	6,375	0	0
Appropriation from Sales Department Surplus	1,731	0	0	..			..			..		
	10,701	0	0	713	16	4	5,995	0	4	6,708	16	8
Balance from 31st March, 1933				..			2,982	10	1	2,982	10	1
Prize Holdings Competitions				1	5	0	1	14	0	2	19	0
Beekeeping Industry				41	13	4	422	17	10	464	11	2
Show Deposits				..			5	0	0	5	0	0
Fees for use of Show Equipment				..			1	1	0	1	1	0
Nethersole Presentation Fund				3	6	6	5	11	6	8	18	0
Seeds Trading Account				735	8	1	1,731	5	8	2,466	13	9
Refunds of Advances				58	10	0	321	19	8	380	9	8
Donations for for Local Competitions ..				1	1	0	..			1	1	0
				1,555	0	3	11,467	0	1	13,022	0	4
Less Expenditure per contra										11,732	6	7
Balance										£1,289	13	9
Cash in hand				27	5	4						
Cash at Barclay's Bank, Current A/c				232	8	5						
Cash at Royal Bank of Canada, Current A/c				230	0	0						
Cash at Royal Bank of Canada, Deposit A/c				800	0	0				£1,289	13	9

Statement of Accounts for December, 1933, *contd.*

Expenditure.	Estimates. £ s. d.	December. £ s. d.	Forward. £ s. d.	Total. £ s. d.
By Personal Emoluments:				
Secretary and Office Staff	1,847 0 0	172 5 5	1,236 1 0	1,408 6 5
Instructors and Supervisors	7,385 0 0	597 11 8	5,095 19 4	5,693 11 0
Instructors' Course at Hope	125 0 0	..	62 9 8	62 9 8
Instructors' Contingencies	100 0 0	0 9 9	107 3 6	107 13 3
Secretary's Office and Special Travelling	25 0 0	16 9 0	28 5 5	44 14 5
Printing and Stationery	100 0 0	22 5 8	77 2 10	99 8 6
Printing and issuing Journals and Reports	725 0 0	112 5 8	384 13 0	496 18 8
Rent and Rates	58 0 0	7 4 10	40 7 5	47 12 3
Rent of Telephones	15 0 0	..	15 4 0	15 4 0
Postages and Telegrams	10 0 0	0 14 4	8 1 6	8 15 10
Office Furniture:—Repairs	10 0 0	..	3 14 9	3 14 9
Incidentals	50 0 0	4 11 8	43 11 4	48 3 0
Auditors' Fees	25 0 0	..	25 0 0	25 0 0
Books for Library	10 0 0	..	4 9 5	4 9 5
Experiments: Bombay Mango Industry	205 0 0	4 0 5	15 10 8	19 11 1
Subn. to Horace Plunkett Foundation	1 0 0	..	1 0 0	1 0 0
Show Equipment: Repairs	10 0 0	..	1 2 0	1 2 0
	£10,701 0 0	937 18 5	7,149 15 10	8,087 14 3
Prize Holdings Competitions	250 0 0	4 7 4	134 17 5	139 4 9
Beekeeping Industry		43 0 0	448 16 1	491 16 1
Advances to Instructors		..	546 0 0	540 0 0
Local Competitions	..	..	1 0 0	1 0 0
Furniture and Fixtures		..	9 10 0	9 10 0
Seeds Trading Account		436 12 3	2,020 9 3	2,457 1 6
		£1,421 18 0	10,310 8 7	11,732 6 7

Communications.—

(a) *Letter from C.S.O. re cultivation of Indian Hemp, Ganga (Cannibis Indica).*—Letter No. 6221/33 dated 11th December, 1933 from the C.S.O. was read as follows:—

"I am directed by the Governor to inform you that there is reason to believe that Cannabis Indica (Indian hemp), is being grown contrary to Section 7 of Law 40 of 1924, mixed with other cultivation, in the fields of small settlers in Kingston, St. Andrew and St. Catherine.

"(2) I am to ask that all agricultural Instructors and other officers may be directed to keep close observation on all small settlers' cultivations and report at once to the police if any Cannabis Indica is being grown. The police are being instructed to work in close co-operation with your Society and the Department of Agriculture in this attempt to detect offenders and stamp out the growth of this plant."

(Sgd.) A. S. JELF,
Colonial Secretary.

It was decided that the Instructors should be advised accordingly and that their reports should be communicated to the Secretary who would advise the Department of Agriculture.

(b) Letter from the Director on the same subject was read and tabled.

(c) *Letter from C.S.O. re list of Agricultural Research Workers.*—Letter No. 3447/32 dated 14th December, 1933, from the C.S.O., covering list of Agricultural Research Workers in the British Empire, 1933, received from the Scretary of State for the Colonies was read and the publication placed on the table.

(d) *Letter from Director of Agriculture re Bull at Williamsfield.*—Letter from the Director of Agriculture advising that he proposed to replace the present bull now in service of the Society at Williamsfield by a younger animal of Montgomery-Brown Swiss strain within six months was read.

The Board instructed the Secretary to write to the Director of Agriculture expressing their thanks in the matter.

(e) *Letter from M. Golding re position of Agricultural Headman.*—Letter from Mr. Mortimer Golding of Bellas Gate addressed to the Board of Management applying for appointment as an Agricultural Headman was presented.

The Board instructed the Secretary to advise him that no such vacancy existed.

(f) *Letter from Epsom Branch re Direct Members and Branch Societies.* Letter from the Secretary of the Epsom Branch enquiring as to the rights of Direct Members of the Society to discussion and voting at Branch meetings was read.

The Board decided that a Direct Member would have no right of discussion and voting at a Branch meeting except he joined as a member of the Branch.

Half-Yearly Meeting.—

(a) *Report of last Meeting.* (b) *Secretary's Report.* (c) *Draft Agenda.*—The Board then considered the report of the last Half-Yearly Meeting, the Secretary's Report for the half-year ending 30th September, 1933 and the Draft Agenda for the coming Half-Yearly Meeting.

These were authorised after amendment to the Agenda by striking out a resolution from the Associated Branches of Hanover and a resolution from the Westmoreland Branches Associated, proposing to alter the meetings of the Board of Management to quarterly meetings.

As arising from a resolution on the Agenda regarding the treatment of yaws, the Secretary was instructed to write to Dr. Washburn, head of the Rockefeller Foundation in Jamaica requesting him to give a short talk on the subject of yaws at the Half-Yearly Meeting.

Storage of Crops.—

The Chairman made a short statement in regard to the progress that had been made in considering the storage of minor crops by the Society on behalf of farmers.

Further consideration of this matter was deferred.

Instructors:—

Mr. McKay then moved that the standing orders be suspended to enable certain recommendations of the Instructors Committee which met that morning to be considered.

This was seconded by the Chairman and carried.

The following report was then presented.

"Your Instructors Committee met this morning and beg to report as follows:—

A letter from Instructor Buckley requesting a gratuity on his retirement was read the Committee recommends that the request be not considered at the present time.

The Committee considered comments on Instructors' Reports returned from circulation with reference to small number of citrus buds put on during the month of September and refer the matter to the Board for their discussion.

Your Committee considered Expense Account for extra travelling for Instructors consequent on storm damage and recommend that a Special Committee consisting of the Hon. T. J. Cawley, Rev. W. J. Thompson, Messrs. U. Theo. McKay and C. O. Cover be appointed to go into the matter of extra travelling for Instructors and at the same time to enquire into the travelling of the Secretary and Supervisors, Mr. McKay to be Chairman.

The Committee recommends that the Board send letters of condolence to Instructors Martin and McLaren who had recently suffered the loss of their wives through death.

Mr. McDaniel then discussed the citrus situation and the Director of Agriculture reviewed the progress made by his department up to the present for which he was thanked.

The Board adopted the recommendations of the Instructors Committee and instructed the Secretary to carry them out as also Mr. Phillips' request to have an additional column shown on Instructors' Reports as to successes with budding.

Report of December meeting of Committee.—Report from the meeting of the Instructors Committee held 6th December was submitted as under:—

2nd January, 1934.

To The Board of Management:—

Your Instructors Committee met at 10 a.m. on 6th December, 1933 and report as follows:—

1. They recommend that Instructor Thompson's Scheme re work of this Society be not further dealt with.

2. The recommendation of the Committee with regard to the retirement of Instructors Banks and Buckley was dealt with at the last meeting by the suspension of the Standing Orders of the Board.

3. The Director of Agriculture verbally informed the Committee that Instructor Wates would be retired by the Government on 20th January, 1934. Provision should be made by the Board immediately for carrying on these duties.

4. The Committee recommend that the Holdings Improvement Competition in Instructor Marr's area be not carried on.

5. The Committee recommend the affiliation of the following Branches:—Cedar Valley in St. Thomas and Thompson Town in Clarendon.

6. Instructor Atkinson's application for promotion to higher grade was considered and the Committee recommended that the application be not considered at the moment.

7. Application from the Ebenezer Branch for an Assistant Instructor in that area was considered, and the Committee decided that there being no funds available at present that the application be not considered.

8. The Committee recommend leave of absence to Instructor Banks for the month of January.

9. The Committee recommend that Assistant Instructor Maxwell's temporary appointment be extended from the 31st December, 1933 to the 31st March, 1934, pending the consideration of the filling of other vacancies.

GLAISTER BAXTER,
Secretary.

Mr. McKay moved, seconded by Mr. Cover, that the report be adopted.

This was carried.

The Hon. Mr. Cawley moved that a Committee consisting of himself, Messrs. McDaniel and McKay and the Secretary be appointed to go into the question of filling vacancies on the Instructoral staff and to requisition the services of the Supervisors to make re-draft and suggestions on the matter and to report at the next meeting of the Board.

This was seconded by Mr. Sangster and carried.

Diseases of Plants and Animals: Insect Pests.—

(a) *Panama Disease of Bananas—Report for November.*—The monthly report on the Panama Disease of Bananas was submitted and the Secretary was directed to send copies of this to the members of the Board as usual.

Industries.—

(a) *Beekeeping—Instructor's Report for November.*—Bee Instructor's report for November was placed on the table.

The Secretary stated that this was in circulation to the Bee Industry Committee.

(b) *Tobacco—Letter from C.S.O.*—Letter No. 6258/33 dated 12th December, 1933, from the C.S.O. was read as follows:—

"I am directed by the Governor to acknowledge receipt of your letter, C.S.O. No 58 dated 18th November, 1933, on the subject of a resolution moved at the last half-yearly general meeting of your society requesting that the Government conduct the necessary research and experiments for the production and flue curing of Virginia types tobaccoes. Your letter has been brought to the notice of His Excellency.

"His Excellency appreciates the importance of tobacco growing in Jamaica, but he understands that private interests are proposing to devote attention to the subject raised in your letter under reply.

"The Director of Agriculture has been asked to give attention to this subject and to report at a later date on the question of the necessity for conducting special investigations with a view to securing the use of a higher proportion of locally grown tobacco in the manufactures of the Machado Tobacco Company."

(Signed) A. R. DIGNUM,
for Colonial Secretary.

The Secretary suggested that the letter be read at the Half-Yearly General Meeting.

This was agreed to.

Branches, Resolutions, etc.

Resolutions from the various Branches as under were dealt with the Secretary being instructed to forward to the proper authorities.

(a) *St. Elizabeth Branches Assoc.:*
- (i) *Re Road Improvement as Relief Work.*
- (ii) *Condition of Black River and Tributaries.*
- (iii) *Re Police Station at Ipswich.*
- (iv) *Re Post Office Building at Ipswich.*
- (v) *Re Telephone Station at Fyffes Pen Post Office.*
- (vi) *Tri-Weekly Mail Van Service for Fyffes Pen and surrounding districts.*
- (vii) *Government Savings Bank at Fyffes Pen Post Office.*

(b) *St. Mary Branches Assoc.:*
- (i) *Re Pension for Messrs. Wates and Buckley.*
- (ii) *Re Bridging of Brimmer Hall River.*
- (iii) *Re Parochial Roads in the Port Maria District.*
- (iv) *Re Vocational School for St. Mary.*

(c) *Waterloo (St. Catherine) re Road.*

(*d*) *Ulster Spring re Buying Bananas at Ulster Spring.*
(*e*) *Hanover Branches Assoc.:*
(*i*) *Re Road (2 resolutions).*
(*ii*) *Re Road construction as Relief Work.*
(*iii*) *Re Mail Coach Service.*
(*iv*) *Re Part-time D.M.O. for Windward Division.*
(*v*) *Re Seed Distribution (Relief).*
(*f*) *Barbican:*
(*i*) *Re School.*
(*ii*) *Re Road.*
(*g*) *St. Catherine Branches Assoc.:*
(*i*) *Re Treatment of Yaws.*
(*ii*) *Re Parochial Dispensary at Sligoville.*
(*iii*) *Re Medical Outdoor Station at Edward Piece.*
(*iv*) *Re Visits of D.M.O. to Kentish.*
(*v*) *Re District Nurse for Ginger Ridge.*
(*vi*) *Re District Nurse for Sligoville.*
(*vii*) *Re Roads (6 resolutions).*
(*viii*) *Re Bridge at Colbecks.*
(*ix*) *Re Native Corn.*
(*x*) *Re Banana Buyers and Runners.*
(*xi*) *Re Elementary School for Ginger Ridge.*
(*h*) *Springfield (St. James) re Road construction as Relief Work.*
(*i*) *Tranquility re Bridging of Buff Bay River.*
(*j*) *Petition from Hall's Delight re Relief Work and the opening up of Crown Lands.*

New Members.—

On the motion of the Hon. Mr. Cawley, seconded by Mr. McDaniel, the following were elected members of the Society:—

J. A. Caseley, c/o Lascelles deMercado & Co., Ltd., Kingston.
H. S. Nethersole, c/o Ja. Banana Producers Assocn., Ltd., Kingston.
Rev. Jas. M. Harney, St. Joseph's Church, Sav.-la-Mar.
C. E. Hunt, 12 Water St., Rae Town, Kingston.

Other Business.—

(a) *Letter from Mr. Bacquie re Small stock.*—Supervisor Bacquie's report on small stock sires for subsidy at Cornwall near Lacovia and Brown's Town in St. Ann was read.

Mr. Cover moved, seconded by Mr. McDaniel, that subsidies not in excess of £2 10/- toward the cost of the animal and £2 12/- per annum toward the cost of maintenance per animal be authorised.

This was carried.

(b) *Letter from C.S.O. re Seed Distribution in St. Elizabeth.*—Letter No. 5850/33 dated 28th December, 1933 from the C.S.O. covering letter of thanks from the St. Elizabeth Branches Associated with reference to the free distribution of seeds was read and noted.

Further Resolutions from Branches.—The Secretary was directed to send the following resolutions to the proper authorities:—

(c) *Resolution from Upper Pedro Plains Branch re Telephone Station.*
(d) *Resolution from O'Meally Branch re Relief Work.*
(e) *Resolution from Skibo re Bridging of Spring.*
(f) *Resolution from Enfield Branch re Road.*
(g) *Resolution from Oxford Branch re Road.*

(h) *Letter from Banana Industry Aid Board re Loans.*—Letter from the Banana Industry Aid Board advising that they were not agreeable

to making a general extension of loans to the 1st September next, but that each would be considered on its merits, was read and noted.

(i) *Letter from Inspector General re Testing of Scales.*—The following letter from the Inspector General of Police was read and noted.:—

No. 1383 29th December, 1933.
J.A.S. 4438/33

"In reply to your letter of the 18th inst., I have to inform you that I have now issued further instructions, making it quite clear that the arrangements as regards the testing of weights and measures were made as a help to shopkeepers and traders and that they are not compelled in any way to avail themselves of the facilities for testing unless they wish to do so."

(Sgd.) OWEN F. WRIGHT,
Inspector General.

(j) *Resolution from Johns Hall (Clarendon) re Impounding of Stock.*—Resolution with regard to the care of stock at markets was submitted.

The Board decided that they would take no action in the matter.

The meeting then adjourned to Wednesday, the 7th February, 1934, at 11.30 a.m.

MR. STOREKEEPER

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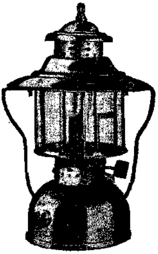

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KINGSTON.

CARE OF THE DAIRY HEIFER.

By J. W. Howe, M.Sc., Headmaster Farm School.

The proper care of dairy heifers is a most important item in the Programme of the dairyman. It is very necessary that the dairy calves be properly raised, so as to have them develop, but no matter how much attention is paid to the feeding and care of calves, unless attention is given to them after they have passed the calf stage, development will be ratarded, and the work spent on them will have been wasted. Heifer calves are particularly valuable to the dairyman as they are necessary to replace old cows in the herd which have been drafted out. For this reason, the calves used for replacement should be superior to those animals drafted out, and unless this is done the quality and production of the herd will rapidly dete iorate.

While a calf may be well bred and well fed, there is always the danger that the animal may be ruined as a milker, due to lack of attention and proper feeding during the heifer period. If proper attention is not given to the animal during this time the animal may become stunted in growth and as a consequence production will be greatly reduced.

In a previous article the question of calf raising was discussed. Raising an animal through the calf stage is more difficult than raising one through the heifer stage. It is also true that the heifer returns no money until she freshens and for this reason she is often neglected.

Calves can be weaned at from 6 to 9 months, and then turned out to pasture. Good succulent pasture will provide ample feed for dairy heifers in most cases, but it advisable to supplement the pasture with a small allowance of some concentrated feed such as corn, cottonseed meal, coconut meal or other calf feeds. If one-third to one-half pound per 100 pounds live weight is given while the calves are on good pasture it will keep the heifers in good condition and prevent any set back in development.

Plenty of fresh water should be available for the heifers at all times. Should it not be possible to have the water in the pasture, provision should be made for watering the heifers at least twice daily at regular hours. This is especially necessary during the hot weather when the pasture is dry. Salt should be available for the heifers in the pasture. This acts as a conditioner and keeps the "bloom" on the animals. If the calves are fed in the stall then salt should be added to the ration.

The time at which heifers should be bred depends on the development and age. It is a fallacy to breed a heifer at 18 months unless she has developed properly. With proper maturity and development the heifers may be bred from 18 months to 2½ years of age. If they are bred earlier than 18 months it may retard their growth, and if they are bred later than 2½ years of age there is a possibility that they may become too fat and be difficult to get in calf.

In breeding the heifer use the best bull you can get and a bull which is of the same breeding as the heifer. It is only by doing this, that the dairyman can secure uniformity of type, and increase the production of the herd. The aim of every breeder should be to have the offspring an improvement over its dam.

The gestation period for cattle is 284 days. If a heifer is bred from 18 to 30 months of age she will calve at 2 years and three months to three years and three months of age. It is important that attention be given to this point as it allows the heifer to make the maximum amount of development before having to nourish a calf, and better milk production will result.

During the early part of the pregnancy period the heifer should be fed as previously prescribed, on pasture with a small amount of concentrate. About three months before calving the heifers should have the feed allowance gradually increased to about double the amount, so that she will be in good condition at calving time. During this time the heifers should be handled daily so as to become accustomed to handling. This will relieve the owner of a lot of trouble when the time comes to break her to milk. Rough handling will spoil a heifer and give the dairyman trouble later.

About the time the heifer is due to calve she should be put in a clean pasture and watched. She should be fed bran just previous to calving, either dry or in the form of a mash. After calving she should not be fed for about 24 hours, when she can be fed a light ration of meal mixed with bran. The calf should be allowed to suckle the dam and get the first milk or colostrum, after which it should be taken away.

Breaking a heifer to milk is important, and gentleness should be insisted upon. A badly broken heifer will often become a "kicker" which will cause difficulty later. A badly broken cow is not an asset to any herd, since she takes longer to milk and generally gives a reduced flow of milk—a loss of money to the dairyman. Careful handling and good feeding will pay handsomely in the end.

The raising of heifers is not a difficult matter for the dairyman. Too much emphasis cannot be laid upon the fact that it is of vital importance that heifers be given proper attention and feeding, so as to have them properly matured and in good condition when the time comes for them to take their place in the dairy herd.

THERE ARE PLENTY OF RISKS

In raising Cattle, and yet there is

ONE RISK THAT CAN BE AVOIDED.

You need not have a single loss from Blackleg if you vaccinate every calf with Franklin Blackleg Bacterin.

DON'T WAIT FOR THE ATTACK.

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SOLE AGENT

O. M. Franklin Blackleg Bacterin.

EDITOR'S COMMENTS.

Elsewhere in this issue is reprinted a British Honduras Land Settlement Scheme which has been communicated to the Government of this Colony, obviously intending to induce portions of our agricultural population to emigrate and develop that little developed Colony.

The financial terms appear quite attractive, assuming that the lands are fertile, that markets are obtainable for the produce grown, that the health conditions are such as to be reasonably livable, and that some educational facilities exist for children of settlers' families.

Such an opening appears on the surface to help us to solve our problems of unemployment and surplus population (if such a thing as the latter exist) and possibly also the problem of our returning men from Cuba, and the Central American Countries.

We, however, are not admitting that this solution is a wise one for the future development and prosperity of our country.

We are not admitting either that we have yet even approached the problem of a surplus population. We think Jamaica will be a better country more highly developed and prosperous with 2,000,000 inhabitants than it now is with 1,000,000.

We want to learn to provide for ourselves the facilities for an island agricultural development which will be adequate for the support of our increasing population on a reasonably good standard of living.

We possess many nuclei of organisations which could and should contribute to such a development. Our Land Board, Agricultural Loan Societies Board, the Department of Science and Agriculture, the Education Department and last but by no means least this Society, are all embryo of what should develop into strong, vigorous, efficient and adequately staffed and financed Development organisations.

The fact is, should our population have to develop other lands for their livelihood, it will be our own fault, our loss and some other countries' gain. It will be entirely due to our lack of vision and an inability to make good use of the many valuable natural assets with which we are blest, not the least being a hard working law-abiding population and a fertile soil.

At the risk of repeating ourselves we cannot refrain from asking these questions.—Why should not our Land Board finance our land settlement? Why should not our Co-operative Loan Banks finance their development? Why should not our Department of Science and Agriculture be possesed of the knowledge of proper, and profitable agricultural practice and crops? Why should not the Education Department equip our children with an education sufficient to appreciate the necessity for modern methods for agriculture and to fit them to assimilate easily agricultural literature and teaching? Why should this Society not be well able to desseminate agricultural knowledge and teaching to every one capable of accepting it?

Should there be reasons to prevent these necessary services, it is by their removal that we shall progress.

When corresponding with Advertisers, mention the Journal of the

JAMAICA AGRICULTURAL SOCIETY.

Our Director of Agriculture in his address to the St. Mary's Branches Associated at their last meeting held at Highgate, has made some very valuable statements with reference to a better appreciation of fertilizers as a means of maintaining the fertility of our soils and the quality and volume of our crops. We know that the Department plans much more intensive work on fertilizer investigations during the coming year, and on a variety of crops on a more thorough scale than perhaps has ever been done in the past.

Referring to our major crop, bananas, up to now there has been no conclusive evidence as to the increase of production by the use of fertilizers but we do know that the period required for producing fruit can be considerably lessened by using suitable fertilizers for the purpose. This possibility of influencing the crop to enable it to be reaped earlier than would otherwise be the case is of the greatest importance to banana farmers, especially those who have suffered from hurricane damage later in the year. One of the most pernicious effects of the November hurricane is that the succeeding crops from fields which are allowed to ratoon (after being hurricane damaged) and deliver their fruit in the succeeding year, does so in another hurricane season with all its attendant risks. Exactly this happened in 1932 and 1933. The November hurricane of 1932 blew down the advanced fruit and trees and the succeeding crop had a considerable amount of fruit hanging in November of 1933, which of course made the loss by the 1933 storm practically 100%. Had banana planters been able or willing to fertilize immediately the ratoon suckers in November, 1932, it seems to us highly probable that not only would a large percentage of the crop have been reaped in 1933 before the November storm of that year, but the roots from which it had been reaped would have been little damaged by the storm, so that we would have had in addition to a certain percentage of the crop being realized a reduction in the losses from the storm to the succeeding crop of 1934.

We consider this aspect of fertilizers something worthy of immediate thought, and if fertilizing is done to those of the ratoon fields that are storm damaged and are intended to be retained for crop, the position in the face of a possible 1934 November storm could be much improved.

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EXTRACTS FROM THE SPEECH OF HIS EXCELLENCY THE GOVERNOR OF QUEENSLAND, AUSTRALIA, AT THE OPENING OF THE QUEENSLAND PARLIAMENT, AUGUST, 1933.

On other pages of this issue we have given extracts from oversea publications with a view of keeping our readers aware of what other countries find it necessary to do to further their agricultural progress. Those extracts had special reference to development along the lines of agricultural credit. We however make no apology in publishing some happenings in Queensland, Australia, which show how much is being done there to help agriculture. Without doubt the importance of the prosperity of the agricultural community as an asset to the country seem well realised there. It is being also realised in this Colony without doubt, but we are afraid that the concensus of influential opinion is not sufficiently unanimous and confident to produce as definite results in the near future as there should be. The extract above referred to constitutes the speech of the Governor of that Dominion and the big impression we have is the agricultural-mindedness of the utterances made. No phase of the agricultural situation seem to have escaped review—Livestock, Sugar, Cotton, Dairying, Forestry, Pig Rearing, Agricultural Credit, Agricultural Education, Roads, Native Preferment, have all been considered, and the bills to be introduced to be made law seems one long agricultural list: Roads, Land, Development of Unproductive Private Land, Grazing Districts Improvements, Irrigation, Wire and Wire Netting, Tobacco Industry Protection, Pig Industry, Dairy Industry, Producers Organization and Marketing and Regulation of Cane Prices are among the important matters to be placed before the Legislature. The list appeals to us as one that those who love our Island must emulate.

Editor.

(*From the Queensland Agricultural Journal, September,* 1933.)

In opening the Second Session of the Twenty-sixth Queensland Parliament on Tuesday, 15th August, His Excellency the Governor, Colonel The Right Honourable Sir Leslie Orme Wilson, reviewed, in the course of his speech, the progress of country life in this State during the year, and forecast new legislation that will have an important bearing on our rural industries. His Excellency said that since he opened Parliament in August of last year he had travelled over 19,000 miles in visiting various parts of Queensland, and everywhere he had found a very real sense of loyalty to the throne and person of His Majesty the King, and, as his representative, he had been given a most warm and generous welcome in every town or district he had visited.

The following are other excerpts from His Excellency's speech, which are of especial interest to primary producers:—

"While we are at the moment," he said, "passing through difficult times, which are, unfortunately, to be found in every part of the world, I can feel nothing but confidence in the future of this State. The fertility of the soil and the character of the people are assets which no temporary depression can destroy, and I feel convinced myself that, with vision and determination to succeed, Queensland must advance along the road to full prosperity and commercial greatness."

The Queensland Government has done more to assist the wool industry during its period of depression than any other

Government in Australia. Most sheep-grazing land in Queensland is held under lease from the Crown as grazing selections and pastoral leases, and very valuable concessions have been granted by the Government. The season has not been generally favourable to the sheep and wool industry. Generous and unexpected rain in July gave State-wide relief and should ensure a good spring. Happily for all concerned, the prices realised for wool appreciated towards the end of the wool-selling season. There is reason to think that the advance is sound, and that even better prices may be looked for in the future.

The 1932 sugar crop yielded 514,000 tons of sugar, valued at £9,700,000. The reduction from the previous season's yield was due in a large measure to the sub-normal season which prevailed in the southern sugar areas.

The cotton-growing acreage further expanded during the past season, and the total yield will probably reach 11,000 bales for this season.

The climatic conditions experienced over the dairying areas of the State during the past year were generally unfavourable for dairy production, but not withstanding this the output of butter during the period exceeded that of the previous year by approximately, 5,000,000 lb., while cheese production showed a slight increase.

To assist in solving the many problems associated with the profitable development of extensive areas of fertile tropical jungle lands having an assured rainfall which are to be made available shortly for settlement, a tropical reasearch station is about to be established.

Pig raising is becoming an increasingly important factor in in our rural economy, and to give added stimulus to production my advisers intend launching a definite scheme for improvement of the pig industry, which will provide for financial assistance to approved farmers. In co-operation with the Meat Industry Board, the Board of Animal Health, and other interests, a pig industry research and experiment section will be added to the Animal Health Station at Yeerongpilly.

My advisers recognise the desirableness of assisting farmers and settlers through the Agricultural Bank in all suitable cases with as few restrictions and in as liberal a manner as possible. During the last financial year advances amounting to £354,000 were approved under the Agricultural Bank Acts.

One of the most distressing phases of the problem of unemployment is the lack of suitable openings for our growing youths. Among other projects my advisers have planned the farm training school for boys at St. Lucia, which was opened in January last, and it is gratifying to record that success has attended the project. Practical instruction is given in pioneering and the routine work of farm and dairy and, generally, everthing possible is being done to fit the boys for country life and industry. As a greater incentive to earnest trainees, two scholarships tenable at the Queensland Agricultural High School and College will be granted at the end of each half-yearly period. My advisers have also adopted a scheme for rural training of youths direct by the farmer. Although the scheme is really only yet in its infancy, 252 youths have been allotted to farmers. In

the first annual meeting of the stockholders. If the articles of incorporation are approved, a representative from the corporation meets a second time with the board of directors and aids them in setting up a permanent organization. At this business meeting the board of directors elects a president, one or more vice-presidents, a secretary-treasurer, adopts its by-laws, appoints two of its members to act with the president as the executive or loan committee, and selects a loan inspector or inspectors. Then your Production Credit Association is ready to receive applications for loans.

Borrowers Buy Class B Stock.—

The initial paid—in capital for the association is provided by the Government. Your district Production Credit Corporation will subscribe to Class A stock in the association to the amount of 20 per cent. of the loans to be made. Additional capital is provided, through the sale to borrowers, of another kind of stock—Class B stock. Borrowers are required to own Class B stock to the extent of $5 for every $100 or part of $100 they borrow. The farmer may purchase the stock with money borrowed from the association. Class A stock is non-voting and is preferred as to assets in case of liquidation. Class B stockholders vote in the local association, each member having one vote only. Both Class A and Class B shareholders participate equally in the distribution of dividends and are not subject to a double liability.

The amount of capital provided through the sale of the two kinds of stock will depend on the loans made by the association. For example, if the Production Credit Corporation estimates that the association will loan $100,000 to farmers, the corporation will subscribe for Class A stock amounting to 20 per cent. of $100,000 or $20,000. If the association actually loans $100,000 borrowers from the association will subscribe and pay for $5,000, of Class B stock, or 5 per cent. of the amount they borrow. Thus the total capital of the association would be $25,000, $20,000 from the Production Credit Corporation plus $5,000 from the borrowers.

An association obtains money to loan by re-discounting farmers' notes with the Federal Intermediate Credit Bank up to five times its unimpaired capital and guaranty fund. Thus, $1,000 capital makes possible about $5,000 of production loans.

Cost of Credit.—

The rate of interest on loans from the association cannot be more than 3% greater than the discount rate of the Federal Intermediate Credit Bank. At present the discount rate varies from 3 to 3½ per cent, so that the rate of interest paid by the farmer would be either 6 or 6½%. This spread of 3% goes to your association. This income, plus the interest earned by the bonds in which the capital is invested, together with the fees collected to pay for inspections, is used to pay current operating expenses, to replace losses sustained on loans, if any, and to build a reserve for bad accounts. The remaining income will be used to build a guaranty fund equal to 25 per cent of the paid-in capital of the association. After the guaranty fund has grown to 25 per cent, a dividend of not to exceed 7% may be paid. Additional earnings may be used to retire Class A stock so that in time the association may be entirely owned and controlled by the borrowers.

The association will make most of its loans for 12 months or less; none for more than 3 years. They will be secured by a chattel mortgage acceptable to the local loan committee and the Federal Intermediate Credit Bank. The association will make no loans for less than $50. A loan to any one farmer may not exceed 20 per cent of the capital and

guaranty fund of the association unless the collateral is approved by the Production Credit Corporation. If the collateral is approved by the corporation, a loan may be made up to 50 per cent. of the capital and guaranty fund. Loans in excess of 50 per cent. of the capital and guaranty fund may be made if approved by the Production Credit Commissioner.

The Breeder's Gazette, Nov.-Dec., 1933.

Credit Banks Ordinance.

BRITISH GUIANA.

On August 30th the Legislative Council passed an Ordinance designed to make better provision for the supervision and management of the Co-operative Credit Banks.

The Ordinance re-enacts, with necessary amendments, Sections 30 to 315 of the Local Government Ordinance of 1907 (now repealed) under which these Banks have been established and carried on in the past. The general superintendence of the Banks in future will be under a Board appointed by the Governor, of which the *ex officio* chairman will be the Director of Agriculture. Short term loans from public funds will be made to Banks registered under the Ordinance on such conditions as the Governor-in-Council may think fit. The loans will be made principally for productive agricultural or industrial enterprises which hold out reasonable prospects of profits; but preference will be given to cane farming, rice growing, and the cultivation of coconuts, cocoa, coffee, etc. "If these Banks can be properly controlled and managed they should prove of much use to the growers who are the principal persons to be looked after, and should result in extended cultivations."

The West India Committee Circular, October 12, 1933.

Purchase a Pure-Bred Bull on Terms.

The Government has decided to set aside a sum of £20,000 for the purpose of making advances to dairy farmers and beef cattle breeders to enable them to secure pure-bred bulls with a view of improving the quality and productive capacity of their herds.

It is proposed that the amount of advance to any one settler shall not exceed £50, exclusive of freight, and that the advance in respect of any one bull shall not exceed £25, exclusive of freight. If desired by the applicant the advance can be applied towards the purchase of a higher-priced bull provided the applicant pays the balance of the purchase money to the Department prior to the completion of the purchase.

Repayment of advances will be extended over a period of five years, carrying interest at the rate of 4 per cent.

The selection and purchase of all bulls will be under the supervision of the Herdmaster of the Department, in order to ensure that only suitable bulls will be purchased, and, in addition, no bull will be accepted until it has passed the tuberculin test and the agglutination test for contagious abortion.

Forms of application and any further details will be made available on application to the Officer-in-charge of the Rural Industries Branch, Department of Agriculture, Box 36a, G.P.O., Sydney.

Agricultural Gazette of New South Wales, September 1, 1933.

Scheme to Supply Flock Rams on Terms is to be continued.

The arrangements by which owners of small flocks may obtain rams on easy terms are to be continued. As in the previous season, assistance will be restricted to owners of not more than 2,000 ewes who would otherwise be unable to obtain suitable rams, and the advance to any one applicant will be limited to £40, plus freight, if any. The rams must be purchased from registered stud breeders and the maximum advance per ram will be £3 3s., but under certain conditions the advance may be applied towards the purchase of higher priced rams. Repayment of the advance with interest at 4 per cent. per annum will be required in two equal instalments from the second and third years' proceeds. It will be necessary for applicants to execute a mortgage over the rams supplied and for existing mortgagees, if any, to consent to the orders against 1935 and 1936 seasons' wool proceeds, which will be required from the settler. The selection of all rams will be under the supervision of the Sheep and Wool Branch of the Department.

The Agricultural Gazette of New South Wales, September, 1933.

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CITRUS.

The waste in citrus that has occurred within the past month or so has been something appalling. News articles in the daily papers on this subject are only too true. The worst feature of it is that much of it is preventable as 80% of the rejected fruit is caused through mechanical damage either by the hands of pickers or subsequent handling.

There is a new and promising market developing in New Zealand. This is very welcome at a time when prices are abnormally depressed in nearly every other market, but as everything has its reverse side so has this New Zealand market. It is more exacting and fastidious than any of our other markets, which fact makes it absolutely impossible to give any fruit, however slightly damaged or scale ridden, the benefit of the doubt.

Our Board of Management is greatly concerned over this matter, and are endeavouring to co-operate with the Produce Inspectorate to the limit of their ability.

We reproduce below instructions which have been sent out to our Instructors, which are the suggestions passed on to us by the Chief Produce Inspector. We draw attention to this, hoping that everybody will do the very best possible to exercise the necessary care and precautions that are essential to the proper harvesting and handling of our citrus fruit.

Ed.

Points for Instructors to note with regard to gathering of Citrus Fruit.

1. To visit groves where fruit is being gathered and where necessary demonstrate the manner in which such fruit should be gathered from the tree.
2. To note that fruit is not stem plucked but closely stem cut from tree.
3. To note that all fruit which falls from the tree either naturally or at the time of gathering is discarded.
4. To note that gathering fruit is not done in early morning nor after rain.
5. To note that fingernails of those who handle or pick fruit do considerable damage and should be guarded against.
6. To note that the portion of the stem with leaves on it is not broken away with fruit as this destroys succeeding crop.
7. To note that the fruit is properly lowered in a padded basket from the tree to party below.
8. To note that fruit is not placed upon the ground but in boxes or suitably protected from contact with the ground.
9. To note that the fruit is carried to a covered place or placed in a vehicle without delay.
10. To note that fruit is not exposed to the sun or rain or placed where water can soak it.
11. To note that fruit is not conveyed to a house or vehicles in anything but boxes.
12. To demonstrate as far as possible to the people the use of clippers and try to get the people to use such clippers.
13. To remove rotting fruit from the trees and on the ground and such fruit should be immediately buried.
14. To carry a copy of the Citrus Regulations and explain carefully these Regulations to those who are affected by them.

(*Extract from Florida Grower for June-July,* 1933.)

Profit and loss accounts, averaged over a period of years, afforded the only sound basis for determining the worth of grapefruit, orange or tangerine plantings. Recognition of this fact more widely will serve to reflect the citrus industry in the true light while any other system of determining worth can only mean unfairly low or excessively high valuations.

Records kept by the Mount Dora Citrus Growers Association for the fourteen years ended with the 1931-32 season showed that in that time it had paid grower-members $2,570,416.18 for 1,484,250 boxes of all grades, sizes and varieties, packed or shipped in bulk, or an average of $1,73 per box.

Turnover was at the rate of 106,018 boxes a year and estimates have been of a yield averaging 150 boxes per acre, returning $259.50 gross. Upkeep expense has been figured at not more than $100 for each acre, leaving $149.50 profit, or 16 per cent. on a $1,000 per acre investment.

SOUTH AFRICA'S CITRUS INDUSTRY.

(*The West India Committee Circular, October* 12, 1933.)

Mr. H. Clark Powell, Professor of Horticulture at the University of Pretoria, who, it will be recalled, visited the West Indies and British Honduras on behalf of the Empire Marketing Board in 1928, read a paper at the recent annual meeting of the South African Association for the Advancement of Science, on the importance of the citrus industry in the Union.

He only dealt briefly with grapefruit production, and showed that exports had jumped from 2,665 boxes in 1920 to 60,178 boxes in 1929, and to 161,218 boxes last year.

Grapefruit had succeeded well in some areas, but could not be considered suitable for inland planting. He knew of no area in the world where grapefruit was successfully grown very far from the sea or over 2,000 feet above sea level. Practically all of the world's production of grapefruit was within 100 miles of the sea or below 500 feet elevation.

The total delivered cost in 1932 of a box of Valencia oranges, count 200, in a large South African packing house, said Mr. Powell, varied between 12/- to 14/- per box, and the gross average selling price, including subsidy of 2/- per box, was 15/5.

In Brazil, the average cost would be about 14/- per box and in California (ignoring exchange losses) about 18/- per box, both of thes figures including shipment to the United Kingdom and the duty c 2/6 per box.

* * * * * *

These costs are of much interest and should encourage our respec for Jamaica's Citrus possibilities.

Editor

When corresponding with Advertisers, mention the Journal of the

JAMAICA AGRICULTURAL SOCIETY.

GIRDLING CITRUS TREES

A progress report of experiments is given in *Farming in South Africa*, VI, 1931 and VII, 1932, in the ringing of citrus trees laid out at White River, Eastern Transvaal, consisting of No. 1,327 Washington Navels, nine years old in 1930 and very uniform, and No. 2,527 Washington Navels, eight years old in 1930, presenting considerable variation in size and vigour. Results to date indicate that ringing, i.e., a single circular cut knee high round the trunk through the bark to the wood, just before the last petals of the main bloom have dropped, gives a substantial increase over yields, obtained from girdling at blossom breaking, full bloom, or fruit pea size. Increase of girdled trees over controls in the first year was 12 per cent., while re-girdled the following year they gave a four per cent. increase or a total of 16 per cent. for the two years. Trees girdled in 1930 and not re-girdled in in 1931 gave a three per cent. increase over the controls making a total of 15 per cent. increase for trees girdled one year and left the next. Instances are given from other orchards to show that ringing has led to substantial increases of yield, in one case almost trebling that of the controls. It is pointed out that these enormous increases have occurred only when low yielding or shy bearing trees have been girdled. When trees in good health and bearing have been ringed, as noted above in in the first paragraph, the increase has not exceeded 12 per cent. for the first year.

(*Horticultural Abstracts, Vol. III, No.* 1.)

(*Extract from Florida Grower for June-July,* 1933.)

TABLE 2—Movement of the Four Leading Varieties of Orange Trees from Nurseries to Groves in Florida, Seasons 1928-29 to 1931-32, Inclusive.

Season.	Total Number of Trees.	Per cent. decrease from preceding Season.
	PARSON BROWN	
1928-29	83,323	..
1929-30	27,936	66.5%
1930-31	51,847	*85.6
1931-32	45,569	12.1
	HAMLIN	
1928-29	60,084	..
1929-30	28,969	51.8%
1930-31	48,764	*68.3
1931-32	69,892	*43.3
	PINEAPPLE	
1928-29	101,362	..
1929-30	55,843	44.9%
1930-31	48,632	12.9
1931-32	47,207	2.9
	VALENCIA	
1928-29	285,420	..
1929-30	101,383	64.5%
1930-31	143,141	*41.2
1931-32	181,531	*26.8

*Increase.

NEW CROPS IN OTHER TROPICAL COUNTRIES.

OITICICA.

According to the Kew Bulletin, 1932, VIII, nut kernels under the name of Oiticica (*Licania rigida*) have for some years been appearing in small quantities on the London market. Owing to lack of material it has only recently been possible to identify the tree producing these kernels as *Licania rigida* Benth (Rosacea), a native of N. E. Brazil, growing to a height of about 45 feet and in habit somewhat resembling the mango. The kernels contain on an average 63 per cent. of oil. Chemical experiments conducted by Bolton and Revis recorded in *The Analyst*, July, 1918, pp. 251-53, "all tended to show that this oil has very remarkable properties, which place it in a distinctly unique position and there is every reason to suppose that the oil is worthy of the attention of the varnish maker. . . . ' Compared with tung oil, which it seems to resemble, it has a higher density, a lower refractive index, a slower heat polymerization and gelatin and a somewhat similar smell. It has a high oxygen absorption relative to linseed oil. The smell indeed is characteristic, heavy and overpowering, so much so that in the early days a factory at Ceara had to stop production, because of it. There is evidence that the Administration of the State of Ceara consider this oil to be of future commercial importance, since the new industry has been exempted from taxes and duties for 10 years, and the felling of oiticica trees has been prohibited. At present there is no information of the rate of development of *Licania rigida* under cultivation. Gemination of seeds imported to England has been very uncertain.

(*Horticultural Abstracts, Vol. II, No. 4, Ab.* 398.)

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NEW INDUSTRIES IN OTHER TROPICAL COUNTRIES.

ESSENTIAL OILS.

A sample of local peppermint oil submitted to the Imperial Institute, was most favourably reported upon, the value assigned to the oil being appreciably higher than the average American oil. It has thus been possible to encourage the planting of peppermint to such an extent that oil will probably be exported during 1933. The peppermint at the Scott Agricultural Laboratories became infested with a root mealy bug which prevented any issue of planting material therefrom, but no record of peppermint being infested elsewhere had been received. Japanese peppermint has been introduced and has grown well at Laboratories. Lemon grass is a promising crop for the warmer zones, as it appears that, although it is eaten by locusts, cuts may be made during the wet season every five or six weeks. The oil has received a very favourable report and would command a premium over the standard oil. In connexion with the essential oil work, a miniature still had been erected which has increased the oil production and enabled the chemical staff to learn some of the practical difficulties of distillation.

For these reasons Messrs. Lever, Ltd., would be prepared to purchase Kenya Lemon-grass oil at a premium over Cochin oil. The determination of the annual yield of oil per acre was interfered with by locust attack, but now we have a well established plot which will permit of an accurate record being kept. The growth on the plot has been very rapid, during the rains or while the soil is still moist, cuts may be made every five or six weeks. The yield of oil is very satisfactory. It most certainly would be worth while cultivating in the warmer parts of the Colony.

Annual Report 1932 *of the Department of Agriculture, Kenya Colony and Protectorate.*

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IMPORTANT NOTICE.

Jamaica Producers' Vegetable and Small Fruits Association, Ltd.,
4 Princess Street,
Kingston, Jamaica,
January 19th, 1934.

To Vegetable Growers.—

Dear Sirs,

In view of the Government having informed the Association that they are not able to assist them to carry out their programme for the development and marketing of vegetables until the Report of the recent Fruit and Vegetable Conference has been dealt with by the Legislative Council, the meeting of growers held at this office on Wednesday, 17th inst., decided that the following plans for the export marketing of vegetables (tomatoes, eggplants, sweet peppers, cucumbers) under the auspices of this Association should be if possible carried out for the coming season.

1. The Association will provide all packing materials, labour, etc., and undertake the packing in Kingston and shipment to Canada for individual growers, provided growers availing themselves of these services will on their first 3 weekly deliveries contribute to a General Working Fund the sum of 2/- per 30 lb. weight of tomatoes and 2/- per shipping package of other vegetables at the time they deliver.

2. This fund to be used by the Association for the purchase of materials, labour costs, shipping expenses, etc., the Association augmenting this fund by making arrangements to draw upon shipments as and when sent forward. After the first three weeks deliveries it is anticipated no further contributions will be necessary from growers who deliver. The contribution made by growers will be carried to their credit and adjustment made as soon as possible after receipt of the final sales accounts.

Yours faithfully,
for Jamaica Producers Vegetable and
Small Fruits Asscn., Ltd.
F. H. Robertson.

Ed. Note:—A meeting was held as arranged and a definite decision to operate arrived at. The operations for this season will be controlled by a special temporary committee to be known as The Vegetable Development Committee (1934). Vegetables suppliers are at liberty to have their vegetables consigned to their own sellers abroad if they so desire.

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BRITISH HONDURAS LAND SETTLEMENT SCHEME.

(*Published in the Jamaica Gazette.*)

No. 69.—The following Schemes of Land Settlement in British Honduras have been received from the Government of that Colony and are published for general information. The Government of British Honduras has also informed this Government that the area available for "Permanent Settlement" at present marked down and in process of being surveyed into 8 acre plots is in three lots of 300 acres, 100 acres and 100 acres respectively. The land is all of a fairly uniform quality and the intention is to concentrate settlement in these three lots as application for land is received. The total area will be sufficient for some 60 settlers. Should there be however an amazing rush of settlers anxious to get a share in a profitable investment all the remaining land which is classed as "land for Temporary Occupation for Banana Planting" can be made available for Permanent Settlement. This would comprise a very large area sufficient to accommodate far more settlers.

Land Settlement in British Honduras.

Surveyor General's Office,
Belize, British Honduras.
17th January, 1934.

The Government of British Honduras has land in the Stann Creek Valley available for settlement by approved cultivators, and invites applications from such persons.

2. The land is classified as follows:—
   (i) Land for permanent settlement.
   (ii) Land for temporary occupation for the purpose of producing bananas only.

Land for Permanent Settlement.

3. The land for permanent settlement will be divided into plots of approximately 8 acres each, which will be leased in the first place for a period of five years at the rent of 50 cents per acre per annum. Land tax will be 10 cents per acre per annum upon land kept under satisfactory cultivation. But rent and land tax will not be charged for the first year of the lease.

4. During the period of the lease the settler will be required to effect and maintain improvements of a substantial fixed and permanent character necessary for the profitable occupation of the land.

5. Subject to the fulfilment of the last mentioned condition and to payment of any outstanding dues a lessee shall have the right to purchase his land at the expiration of his lease at a price which will depend upon the situation of the land in each case; but in no case will the price be greater than $25 an acre for land leased within five years of the date of this notice. The amount of the rent paid during the period of the lease will be credited to the pruchase, and the balance of the purchase price will be payable by ten equal half-yearly instalments.

6. After the final payment has been made on account of the purchase, a title will be given which will be of the order of a freehold title, but will be subject to the condition that if at any time the proprietor fails for a period of three consecutive years to maintain improvements of a

permanent fixed and substantial character necessary for the profitable occupation of the land, the Crown shall have the right to re-purchase the land for the price originally paid for it by the purchaser. If the Crown exercises this right the law provides certain safeguards to the settler who may partially have improved his land. Until the issue of the title the purchaser's rights in the land will be protected by a Location Ticket issued in accordance with the law.

7. In case a lessee prefers not to purchase his land but wishes to continue his lease at the expiration of the first five years, he may do so. In such case the rent shall be subject to revision up to a limited amount every five years if the Government so decide.

8. Each settler is expected to reside permanently upon his holding.

Land for Temporary Occupation for Banana Planting.

9. It is intended that this land shall be used for the production of bananas in rotation with a fast-growing forest crop so that it may be rendered productive until the time comes when, through increase in the population, it can be used for settlement of a permanent nature. Occupation of this land will therefore be allowed only for the period during which it will yield bananas profitably; in general no crop of a more permanent nature will be allowed, but permission will be given for the planting of temporary crops provided that any such crops can be reaped before the yield of bananas becomes unprofitable.

10. Approximately ten acres of land will be allotted to each planter in the first place; if a planter proves capable of managing a greater area more laud will be allotted to him after he has fully planted his first plot.

11. No rent or land tax will be charged for this land, but royalty at the rate of five cents per bunch will be charged for all bananas sold.

12. Permanent settlers in the Valley will not be precluded from occupying land of this class, in addition to their permanent holdings, provided that their permanent holdings are in such condition that they do not require the settlers' whole-time attention.

General Provisions.

13. The Government will endeavour to supply material for the first planting of the plantations. For any material supplied settlers will be required to pay cash in advance.

14. Necessary main drains will be provided by Government when the number of settlers in an area justifies the cost of contruction. Settlers (permanent or temporary) will be required to dig any subsidiary drains in their plots in accordance with instructions to be given by Government in each case.

15. Usually Government requires the sum of $100 to be left on deposit with the Customs Authorities in respect of each adult immigrant. Persons who proceed to British Honduras with the declared intention of taking up land in accordance with the system outlined above will be relieved of this requirement and will be permitted to enter the Colony on making a deposit of $15 or such greater sum as may be necessary to pay the expenses of their journey to their own country. In such cases the Government will reserve for three years the right to repatriate any immigrant who fails to take up land under the system or whose repatriation becomes desirable in the opinion of the Government. The deposit will be refunded to the immigrant at the end of three years.

or when the immigrant leaves the Colony of his own free will (which shall first happen).

16. Persons wishing to occupy land under this system should proceed to Stann Creek and there report to the Assistant Agricultural Officer who will inform them as to their subsequent procedure.

17. Persons from overseas who proceed to the Colony with the intention of taking up land are warned that there are few opportunities for remunerative work whereby to maintain themselves until their plantations become productive. Such persons are therefore advised that they should have in their possession on arrival a sum in the neighbourhood of $300 for this purpose. There is a Branch of the Royal Bank of Canada in Belize upon which drafts may be drawn.

By Order,
(Sgd.) FRED. W. BRUNTON,
Surveyor-General.

COCONUTS.

From a short article in the International Review of Agriculture for September, 1933, we learn that certain experiments in the fertilising of coconuts are being made. It is stated that the ash of the kernel of the nut is composed of potassium chloride 45.84 per cent, phosphoric acid 20.33 per cent. and sodium chloride 13.04 per cent. While our soils usually have available sufficient of potash and phosphoric acid to supply the normal requirements of our crop, certain soils far away from the sea are likely to be quite deficient in sodium chloride which is really only common salt,—so that the popular feeling among farmers out here that common salt benefits the coconut seems well founded. It is interesting to mention that for use as fertilizers if properly certified this commodity can be brought into the country, duty free and would be quite cheap.

Coconut farmers should have their soils tested and if sodium chloride is absent, should enlist the assistance of our Government Soil Chemist in formulating some fertilizer experiments along these lines.

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YAWS.

For some time now resolutions from widely scattered parts of the country have been reaching the Board of Management of this Society pointing out that the serious disease of yaws was not only spreading but that the control measures apparently were not all they should be. The Board of Management requested Dr. Washburn, the local head of the Rockefeller Foundation, to speak on this subject at our last Half-Yearly General Meeting for the information of the delegates there assembled, which the genial Doctor very kindly did and with much benefit to his hearers.

The matter was further taken up with the Superintending Medical Officer, the Hon. Major T. J. Hallinan, O.B.E., and in reply to our letter he has written us covering copies of the instructions issued to Medical Officers and authorities in charge of the treatment and control of yaws, and the correspondence is hereby published for the information of those interested.

We feel quite sure that ventilating this subject will serve a very useful purpose, and that publicity will assist in the eradication and control of this preventable disease.

Editor.

127/5579/32.

Island Medical Office,
Kingston, 26th January, 1934.

Sir,

I beg to acknowledge receipt of your letter No. 236 dated 18.12.33 with a request for an article on the treatment of Yaws, and I forward herewith copies of instructions on the subject which have been distributed by this Department.

2. I understand that after hearing the address on the subject by Dr. Washburn at the Half-Yearly Meeting of the Society the resolution was withdrawn, but I should be glad if you would give publicity to the procedure for control and the method of treatment which is described.

3. It must be emphasised that the disease is a difficult one to cure and requires a prolonged course of regular treatment. The Department's plan now makes a full course of treatment available to sufferers, and results will depend mainly on the co-operation of the people in attending regularly for adequate treatment.

4. I commend to the members of the Society regular reading of the Bulletin of the Bureau of Health Education, and I enclose some copies containing articles on Yaws.

I have the honour to be, etc.,
(Sgd.) T. J. Hallinan,
Suptg. Medical Officer.

Procedure with regard to the treatment of Yaws in the Medical District of.........................

(a) An area is selected of such a size as to provide approximately half-a-day's treatment work for the District Medical Officer, concerned.

(b) Use the Sanitary Inspector to make a census of the area and give him instructions to record cases of Yaws which shew obvious lesions and also who give a history of having had Yaws within 4 years prior to the enquiry.

(c) Having completed the survey the M.O.H. will arrange with the D.M.O. as to time and place for the D.M.O. to do the treatment. The M.O.H. is responsible for presenting cases for treatment.

(d) It is desirable that at least three injections, at intervals of one week should be given and more if necessary to ensure the minimum number of relapses. The more thorough the treatment in a defined area the more easy will subsequent control be.

(e) Having completed an area, another area is selected and dealt with in a similar manner. In general it would be most effective if the new areas were successively adjacent to completed ones.

(f) Re-surveys of completed areas must be made at subsequent periods to discover relapses or new cases. If this follow-up work is done efficiently, treatment work is reduced and the total prevention of Yaws is accordingly more complete.

On work in the Medical Districts of..........................
the M.O.H. will report monthly under "Remarks" as follows:—

.... Medical District Area No. Name of Area.	Total No. Censused to date.	No. Censused present month.	Total infected.	
			Open.	History only.
1				
2				
3				
4				

..................Medical District—another table as above.

The use of District Constables for collection of cases must cease when Sanitary Inspectors begin the work in these Medical Districts.

The District Medical Officers will report treatment monthly as follows in place of the present form for Yaws treatment

Medical District.........................

Area No.	Name of Area.	No. of 1st treatments		No. of 2nd treatments.		No. of 3rd treatments.		No. of 4th treatments.	
		Bis.	Salv.	Bis.	Salv.	Bis.	Salv.	Bis.	Salv.

Where Hospitals or Dispensaries are not available for Yaws treatment work the D.M.O. is requested to submit proposals for the renting of a place as required in the districts under treatment.

These proposals should be submitted beforehand for approval.

Office of the Central Board of Health,
Circular No. 78/309. Kingston, 9th December, 1933.

Sir,

The investigations of the Yaws Commission shew that when a group of cases is treated with 6 injections of intravenous Neosalvarsan at consecutive weekly intervals, the relapse rate after one year is about 4%. Using Bismuth preparations intramuscularly (Bismuth Salicylate in oil), with exactly the same routine, the relapse rate is 20%.

It has been amply proved that, whichever drug is used, it is possible to take a defined area, even if heavily infected, and reduce the incidence of infectious cases to such a low level that a subsequent treatment campaign undertaken 3 to 4 months later will require certainly less than 50% of the work of the previous campaign.

2. Although the above figures shew that Neosalvarsan is a more effective drug than Bismuth for the treatment of the individual case of yaws, they also shew that Bismuth is effective in 80% of cases treated. When it is considered that the cost of treatment by Neosalvarsan is very many times that of Bismuth, it is obvious that an extensive campaign of treatment throughout the Island will necessitate the use of Bismuth. There are probably at least 100,000 cases of yaws in Jamaica. The cost of the drug for treating only one-third of these adequately with Neosalvarsan would be over £10,000 as against about £200 with Bismuth. Even under normal financial conditions the exclusive use of Neosalvarsan would be prohibitive.

3. A supply of Injectio Bismuth Salicylate in oil (B. P.) and Neoarsphenamine will be provided. The routine treatment to be used is six injections at weekly intervals, the first three of which should be intramuscular Bismuth. The great majority of cases will react favourably to this and every effort should be made to complete a full course of Bismuth on those.

For the small group in which no improvement is obtained with three weekly injections of Bismuth, intravenous asphenamine may be used.

In the case of intramuscular injections the strictest care should be taken by aspiration or otherwise to ensure that the drug is not injected into veins.

4. The dosage to be used for Bismuth Salicylate Emulsion is as follows:—

Age.	Approximate weight in stone.	Dose of Emulsion in c.c.	Dose in Minims.
Up to 2 yrs.	1	0.2 to 0.4	3 to 6
2 to 5	2	0.6 to 0.8	9 to 12
6 to 10	3—4	1.0 to 1.4	15 to 21
10 to 14	4—6	1.6 to 2.0	27 to 30
adults		2.2 to 2.6	33 to 40

I have the honour to be,

Sir,

Your obedient Servant,

T. J. HALLINAN.

Chairman, Central Board of Health.

TAXATION IN JAMAICA.

(By DONALD McDONALD, Accountant, Jamaica Agricultural Society.)

WHO ARE TAXPAYERS.

The growing tendency on the part of a certain section of the community to claim a discrimination on the grounds that he or she is a taxpayer took definite shape at the last Half-Yearly Meeting of this Society, when a resolution was introduced with the intention of urging that work on the public roads should be given out in preference to these so-called taxpayers. The resolution found no foothold at a meeting where the standard of intelligence is so high, as it was unanimously admitted that in Jamaica everybody was a taxpayer.

As this enlightened view is only shared by a minority, judging from utterances one hears from time to time and frequent expressions in the local Press, a short explanation to show how we are all taxpayers becomes a necessity.

In Great Britain and certain other countries which have more or less adopted the English system of local government it is usual to regard rates as distinct from taxes. One reliable authority states that when used without qualification "the word rates refers to money raised by a local authority by an annual levy on the property in the area under its control. The term taxes refers to the monetary payments sanctioned by Parliament and collected by Inland Revenue. They differ from rates which are imposed by local authorities such as Borough Councils," (what we know here as Parochial Boards).

It is this failure to differentiate between rates and taxes that seems responsible for this false assumption. The differentiation is of importance and in order to illustrate clearly how each person contributes his share to the revenues of the Colony I shall have to introduce a few local characters, the like of whom most of us are thoroughly familiar.

Father Brown was one of those to whom the word taxpayer meant a lot. It placed him on a higher standing than those following other minor occupations but which did not necessitate a periodic visit to the local Tax Office as he did, where a portion of his hard earned cash was handed over to the Collector in exchange for an impressive looking document.

He owned a nice holding on which he contrived to produce most of his requirements. Industrious and thrifty—a true son of the soil—he disdained "shop food" and there was little in his bill of fare that was not locally produced. For taxation purposes his holding was valued at £80, on which he paid 20/8d. annually to the Collector, being at the rate of 2/7d. on each £10 of value, which is the rate fixed on property owned in the parish of St. Elizabeth. He disapproved in very outspoken language of Timothy, the Parson's yard boy, who took impish delight in stoning his mango trees whenever the season was on. He regarded the boy as a liability on the country who lived only to reap the benefits contributed to by persons like him on whom the burden of taxation descended heavily. If anyone had dared to remark to him that the boy probably paid more taxes than he did hot words might have been exchanged.

Now Timothy had a peculiar fondness for salt fish and flour, and his consumption of these two commodities averaged one pound of each per day. In a year he would have contributed over 25/- to the revenues

of this Colony as for every 100 lbs. of Empire Salt Fish brought into Jamaica the Government gets 3/6d., and 7/- for every bag of flour of 196 lbs. It ought not to be necessary to emphasize that it is the consumer who pays the tax, for should the Government raise the tax on flour by 1/- per 100 lbs., every one knows that Timothy would immediately be called upon to pay a farthing per lb. more for his flour.

Another case might be brought in without straining at the question just to show that sometimes small people pay big taxes.

Jacob, a storeman, who lives on his firm's premises, is regarded as a person with no responsibilities—contributing nothing to the public welfare. Other people must struggle to pay taxes so that he may have good roads to drive over, adequate Police protection, etc.

This good fellow likes his little rum, and treats himself every day to a half pint bottle of his favourite "Lindo's White Knight," while on Sundays he buys a full pint for himself and friends. This moderate quantity amounts to 17½ gallons per annum, on which the Government would have collected £7 in Rum Duties, being at the rate of 5/- per gallon plus 60% surtax.

In a subsequent article I hope to tell you how the money we pay in taxes is spent.

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JAMAICA AGRICULTURAL SOCIETY.

COMMENTS.

An interesting extract of an article from the Florida Grower is given below.

This question of citrus juice flavours should be of great importance to us; as many claim that that is a strong point with our citrus here. If this is so, competition in the markets for this product of citrus would be narrowed as we know that many of the large citrus producing countries are unable to produce juice of this fine flavour. This is the point that is stressed in the extract and possibly we could put this to profitable use for ourselves.

Editor.

Orders from London for juice produced from cull grapefruit kept the cannery of the Arizona Citrus Growers Association busy until the end of the season, 705 barrels, equivalent to 35,360 gallons having been sold abroad. Business was done through the Orange Products Company of the California Fruit Growers Exchange, with which Arizona growers are affiliated.

When a 50 barrel sample shipment reached Great Britain late in the spring, the juice was so well liked that cablegrams came quickly for 75 barrels more. In a few days orders for 80, 100 and 300 barrels were received, the latter raised to 400. Night shifts were worked in the cannery and the 20,000 boxes used cleaned up the supply of low grade fruit. ....
....Interestingly the *Producer* proceeds to explain why in its opinion Arizona can successfully compete for the British Market, saying:

"Both Florida and Texas are considerably closer to the English market than Arizona, which must ship its juice to the Pacific coast and thence through the Panama Canal to the Atlantic. But no fear is felt that those states can offer Arizona any serious grapefruit juice competition. Juice of pomelas grown in the so-called desert regions of the South-west runs higher in both acid and sugar.

"It has more snap, tang, flavour, call it what you will. When it enters into mixed drinks it is pretty well diluted, and it stands dilution better than juice from the watery fruit of Florida and the Rio Grande Valley. Concentration would involve heat or some other process sure to impair flavour. So it looks as though Arizona is away out in front and likely to stay there."

Florida Grower for June-July, 1933.

* * * * * *

Refrigerated Steamship Line, Inc., subsidiary of United Fruit Company, which will operate two referigerated steamers from Tampa and three from Jacksonville to New York this season for Florida fruit and vegetable shippers, is building a $300,000 pre-cooling plant at Jacksonville. At Tampa it will use the pre-cooling facilities and docks of the Tampa Union Terminal Company.

Florida Grower for September, 1933.

CROPS DON'T JUST GROW!

EFFICIENT FARMERS GROW THEM AND

THEY FERTILIZE

WITH

BAT GUANO and PERUVIAN BIRD GUANO

THESE ARE

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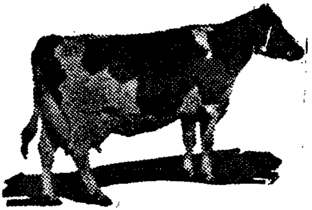

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AGRICULTURAL TABLE.

Number of Plants required to plant an acre of ground at given distances.

	Plants.		Plants.
3 in. x 12 in.	174,240	20 in. x 24 in.	13,068
6 in. x 6 in.	174,240	20 in. x 30 in.	10,454
6 in. x 9 in.	116,160	20 in. x 36 in.	8,712
6 in. x 12 in.	87,120	20 in. x 42 in.	7,467
9 in. x 9 in.	77,440	20 in. x 48 in.	6,534
9 in. x 12 in.	58,080	2 ft. x 2 ft.	10,890
12 in. x 12 in.	43,560	2 ft. x 3 ft.	7,260
12 in. x 15 in.	34,848	2 ft. x 4 ft.	5,445
12 in. x 18 in.	29,040	2 ft. 6 in. x 3 ft.	5,808
12 in. x 24 in.	21,780	3 ft. x 3 ft.	4,840
12 in. x 30 in.	17,424	3 ft. x 4 ft.	3,630
12 in. x 36 in.	14,520	3 ft. 6 in. x 3 ft.	4,148
12 in. x 42 in.	12,446	4 ft. x 5 ft.	2,178
12 in. x 48 in.	10,890	4 ft. x 6 ft	1,815
15 in. x 18 in.	23,232	4 ft. x 8 ft.	1,361
15 in. x 24 in.	17,424	4 ft. x 10 ft.	1,089
15 in. x 30 in.	13,939	4 ft. x 12 ft.	907
15 in. x 36 in.	11,616	6 ft. x 6 ft.	1,210
15 in. x 42 in.	9,956	6 ft. x 8 ft.	907
15 in. x 48 in.	8,712	6 ft. x 10 ft.	726
18 in. x 18 in.	19,360	6 ft. x 12 ft.	605
18 in. x 24 in.	14,520	10 ft. x 10 ft.	435
18 in. x 30 in.	11,616	11 ft. x 11 ft.	360
18 in. x 36 in.	9,680	12 ft. x 12 ft.	302
18 in. x 42 in.	8,297	13 ft. x 13 ft.	256
18 in. x 48 in.	7,260	14 ft. x 14 ft.	222

The omission of the last figure will give the number required for 16 perches.

SEED SELECTION.

Below is published an extract from the Queensland Agricultural Journal for October, 1933, with reference to the selection of seed corn. This is not intended to present a comprehensive survey of the necessities of this important operation but only as a hint of what any farmer can do with the minimum amount of trouble and with very definite benefit to his succeeding crop.

Editor.

The selection of seed should commence in the field. The farmer should first make himself familiar with the variety which he considers is most suited to his locality. The following points should be observed in field selection:—

Select from good, healthy, strong stalks, free from disease.

Select only those cobs that are low down on the stalk and which when ripened naturally, have turned down.

A cob with a good thick husk covering and well covered over the tip.

A cob attached to a strong shank.

Having observed the foregoing, the person selecting the seed should tear a strip of husk from the cob while on the stalk, and note as to whether the cob is well filled with good straight rows and the grain true to the required type. If the cob thus opened is not suitable, it should be left on the stalk to be picked during the main harvest. After completing the selection of seed in the field the cobs so secured should be

taken to the barn and carefully sorted out. It is advisable to keep only those true to type with good, sound, even grains. When the final selection is complete the cobs should be topped and tailed, the term usually applied to the method of removing the round and irregular grains from both ends. The idea of this is to secure a good even-sized grain, thus obtaining an even plant.

Queensland Agricultural Journal, 1st October, 1933.

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and they drink like fishes—but they can't help it—the old man got in the habit of taking home a bottle of Lindo's Rum every evening and now they can't do without it—no wonder they are fastidious.

S. C. LINDO

40-42 ORANGE STREET.

(*Extract from Agricultural Gazette of N.S.W.—Nov. 1, 1933.*)

POTATO CULTIVATION OFTEN OVERDONE.

Local Progressive Methods in Line with Overseas Ideas.

The harmful effects of deep inter-row cultivation of the potato crop has frequently been noted in this State during dry seasons, stated Mr. A. J. Pinn, Special Agricultural Instructor, recently. Main crop growers, particularly in the western and southern districts of this State, have arrived at the conclusion that frequent shallow cultivations during the early stages of growth are of prime importance. A review of the methods adopted by the competitors in potato crop competitions over a number of years reveals the fact that most of these growers also practice frequent, early and level cultivations. The working are effected chiefly by the use of harrows when the crop is breaking ground, and even when the plants are 8 to 10 inches high.

Evidence as to the progressiveness of these methods is contained in a recent issue of *The American Potato Journal*, from which the extracts below are reprinted, and which states that the more frequent use of the weeder early in the season, or until the plants are 8 to 10 inches high, and less inter-row cultivation are now recommended to growers throughout New York State. This has been proven to be both cheaper and more effective than the present system of weed control.

The Primary Object of Cultivation is to Kill Weeds.

The proper cultivation of potatoes is an art dependent on good judgment and a knowledge of the general principles involved, rather than a science which can be reduced to set rules. From the previous generation of soil scientists we inherited a number of theories, such as the conservation of soil moisture by a surface mulch, stimulation of soil bacteria and nitrification through the aeration of the soil, and so forth. These could be demonstrated in the laboratory, but most of them somehow failed to prove out in field experiments, which are the real and final test of any theory. In repeated experiments with corn, and more lately on Long Island (U.S.A.), with potatoes, cultivation has caused a decrease as often as an increase compared to plots where the weeds were simply scraped off with a hoe and the soil never stirred. Where the weeds were allowed to grow yields were naturally extremely low.

When all is said we come back to the original idea of cultivation, namely, that the primary object is to kill weeds. Some form of cultivation is, so far, the only economical means of weed-killing devised. If weed growth is controlled, in the rows as well as between them, further stirring of the soil will apparently accomplish little, and often reduces the yield, though there is some evidence that in years of extreme drought, like 1930 (in U.S.A.), it may be slightly beneficial.

Why Cultivations Should be Early and Shallow.

Someone has suggested the term "birth control" for the killing of the first few crops of weeds, through the use of the harrow and weeder, before the potatoes are above ground. The time to kill weeds is while they are small and weak, not after they have become firmly established and deeply rooted. The spike harrow or weeder also gets over the ground much more rapidly than the row cultivator. Where the seed pieces are planted fairly deep the harrow can be run deep enough to loosen the surface soil thoroughly, and can even be used after the potatoes are up with little or no damage. In 1928 the Pennsylvania 400-Bushel-Club members harrowed an average of 2-3 times, some as many as four times.

The first inter-row cultivation may be, and under some conditions should be, deep and fairly close in order thoroughly to loosen up the soil compacted between the rows in planting, and to allow heavy rains

to penetrate rapidly. As soon as the roots begin to spread out, however, especial care should be taken to prevent root injury. Tearing off roots is a mutilation of the plant which will check and sometimes permanently injure its development. When good-sized potatoes are cultivated closely or deeply, the whole field may sometimes be seen to wilt in the hot sun, even though the soil is not very dry. Such cultivation does more harm than it can possibly do good.

When wet weather has prevented normal cultivation until weeds have attained some size, a set of sweeps will cut the weeds below the surface, but need not be run deep enough to tear the potato roots severely. Otherwise, deep and damaging cultivation will be necessary.

Is the Value of a Soil Mulch Over-emphasised?

Writing in this same journal, E. V. Hardenburg, of the Cornell University (N.Y.), suggests that the primary function of cultivation is weed control. Increase in potato yields resulting from the maintenance of a soil mulch to conserve soil moisture, he says, has been over-emphasised. This has been shown, he claims, by the results of recent experiments reported by the Cornell University and the Pennsylvania Experiment Station. In both of these experiments, running four to five years, plots receiving three to five cultivations yielded as well as plots cultivated eight or more times. Similarly, plots in which the soil was never stirred and weeds were controlled by scraping or cutting yielded as well or better than the cultivated plots. The conclusion is that cultivation may be overdone, particularly during periods of drought, where weed control does not require it, and late in the season when tillage results in serious root damage.

After dealing fairly exhaustively with the subject, Hardenburg arrives at the conclusion, based on the results of recent experiments, that it usually pays best to cultivate potatoes only a sufficient number of times to control weeds effectively, and that the best potato grower is not the one who cultivates most often, but rather the one who handles his weed problem with fewest cultivations and at lowest cost.

Ridge versus Level Cultivation.

Another debated point, says J. B. R. Dickey, of Pennsylvania State College, is as to whether potatoes should be ridged or hilled up. Practically all cultivation experiments (in U.S.A.) show better yields from level cultivation, as less moisture is lost by evaporation and the roots are less disturbed. If weeds in the row have been allowed to develop beyond the stage where the weeder will kill them, they may sometimes be smothered by ridging. Again, if there is danger of the tubers pushing out and getting sunburned, it may be well to throw some dirt to the row. In either case, ridging should be regarded as an evil which may or may not be necessary. There is much less excuse for ridging with late potatoes, which if planted well down in the ground will not set close enough to the surface for exposure to be serious. Ridged potatoes are doubtless easier to dig, but something is usually, if not always, sacrificed in yield to gain this advantage.

Writing in reference to the same subject, Hardenburg says that although ridging does not appear to have a large influence on the amount of sunburn injury, the study of 105 farms in 1931 and 171 in 1932 showed consistently less injury in those fields ridged highest. In view of the fact that extreme ridging, applied when the plants are large and growing rapidly, usually results in loss of soil moisture, much root damage and ultimately reduced yields, it should be done only late

in the season after the plants are nearly mature. If it appears necessary to ridge earlier in order to take care of surface water on the heavier soils, the ridge should be broad or the furrow narrow. Another suggestion is that deeper planting will result in the tubers forming at a lower level with a consequent reduction in sunburn injury.

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THE SUGAR INDUSTRY.

Governor Sets up Advisory Committee on Sugar Industry.

(*Gleaner*, 1.2.34.)

His Excellency the Governor has been pleased to appoint the following to be an Advisory Committee on the Sugar Industry for the purpose of making recommendations in regard to future experimental work and assisting the Director of Agriculture generally in an advisory capacity. The Director of Agriculture (Chairman), Mr. H. H. Croucher, Agricultural Chemist; Mr. M. S. Goodman, Plant Breeder; Hon. F. M. Kerr-Jarrett, Mr. Edward Morris, Mr. Geo. Taylor, Mr. P. A. Bovell, Mr. T. P. Evelyn, and Mr. D. J. Verity.

The Use of Molasses as a Fertilizer.

(*The Canada-West Indies Magazine, October*, 1933.)

On soils that without molasses yield 60 metric tons of cane or less per hectare, the use of molasses resulted in increase of more than 20 *per cent, irrespective of whether the soil was light or heavy*; where the soil would yield between 60 and 140 tons, the result was profitable in 60 per cent. of the cases; on the richest soils—those yielding 140 or more tons—the use of molasses either resulted in no increase or was harmful. In all cases the sugar content was slightly reduced.

In general, the lighter the soil the greater the favourable effect of the molasses and the smaller the chance of loss.

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DAIRY NOTES.

Queensland Agricultural Journal, 1st October, 1933.

GRASS THE CHEAPEST AND BEST STOCK FOOD.

Good grass is the cheapest and best single stock food. No form of fodder can compete in cheapness with natural grasses and herbage. Unfortunately, in favourable seasons an enormous quantity of grass goes to waste, for practically all grasses after exposure to heavy dews and scorching sun rapidly deteriorate, losing colour, flavour, and quality and having but little food value they are only fit for the firestick.

....

.... The high percentage of protein in grass while it is in its early stages of growth makes it advisable to feed grasses in as young a stage as possible. As a matter of fact, young shoots of grass, about 4 to 6 inches high, are equal to many valued concentrates in protein content, and this accounts for the rapid recovery of poor cattle when grazed on pastures freshened by a few showers of rain after spells of dry weather, or after a burn.

Rotational grazing, or in other words, feeding the grass while in its young stage of growth—Controlled rotational grazing, which does not involve so great an outlay, is more a matter of pasture improvement, ensuring the economical use of herbage. The sub-division of holdings to provide for rotational grazing, or the feeding of pasture in its early stages, appears to offer the most ready means of securing an immediate benefit through pasture management.

The chief advantages of rotational grazing are—

(a) The animals consume the grass in its early stage of growth when rich in protein.

(b) The grass is kept evenly cropped.

(c) The animals do not wander over long distances in getting their food, thus extending the grazing time, and preventing the destruction of a quantity of pasture.

Renovation of Pastures.—The carrying capacity of pasture can very often be doubled by renovation. This is a most important aspect of pasture improvement.

Pastures which are in a very unthrifty, root-bound, matted condition can be loosened up by the use of a renovator effectually breaking up the matted root mass and promoting a fresh growth of succulent grass. This should be practised in conjunction with rotational grazing. The value of rotational grazing and the renovation of pastures cannot be too strongly emphasized, and any dairy farmer who gives attention to these points in pasture management will secure undoubted benefit from its practice.

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White Grapes plants for April deliveries 1/- each.
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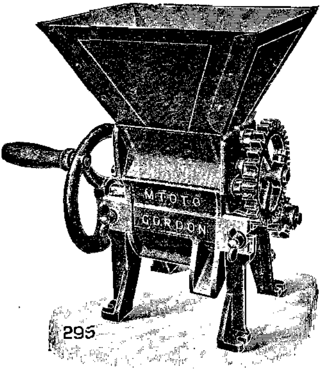

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EXTRACT FROM CURRENT LITERATURE.

Gleaner, 1.2.34.)

EXPORTS AND IMPORTS BY JAMAICA TO AND FROM UNITED STATES.

Comparative Figures for the years 1920 *to* 1932; *both Exports and Imports for last year show drop.*

Through the courtesy of the United States Consul, we are able to publish this morning the statement below with regard to the exports and imports by this colony to and from the United States of America from 1920 to 1932.—

EXPORTS.

Year.		Total not including Parcel Post.	To U.S.A.	U.S.A. Percentage.
1920	..	£7,022,195	£1,988,775	28%
1921	..	3,176,298	1,598,522	50%
1922	..	4,334,078	2,131,608	49%
1923	..	4,195,373	2,101,732	50%
1924	..	3,074,042	1,354,634	44%
1925	..	3,877,161	1,585,710	41%
1926	..	4,176,221	1,859,844	44%
1927-	..	4,762,940	2,002,165	42%
1928	..	4,120,573	1,607,860	39%
1929	..	4,585,264	1,56[illegible],060	32%
1930	..	4,075,473	1,362,653	33%
1931	..	3,265,270	1,029,949	32%
1932	..	3,120,420	552,812	11%

IMPORTS.

Year.		Total not including Parcel Post.	From U.S.A.	U.S.A. Percentage
1920	..	£10,313,282	£6,040,607	58%
1921	..	5.473,790	2,990,516	54%
1922	..	4,580,975	2,091,501	45%
1923	..	5,281,078	2,336,512	44%
1924	..	4,827,074	1,955,867	40%
1925	..	5,386,435	2,143,250	40%
1926	..	5,635,342	2,099,981	39%
1927	..	5,717,521	1,939,102	34%
1928	..	6,089,156	1,922,397	31%
1929	..	6,746,095	2,089,306	30%
1930	..	5,823,037	1,934,542	33%
1931	..	4,734,401	1,430,008	30%
1932	..	4,572,520	817,211	18%

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			18/-	"	Kingston
Cocoa—Ordinary	..		16/-	"	"
Fair fermented			16/-	"	"
Estates fermented			17/-	"	"
Coffee—Good ordinary		..	37/-	"	"
Fine Ordinary		..	39/-	"	"
Manchester-B		..	39/-	"	"
Manchester-A		..	41/-	"	"
Ginger—Rhatoon		38/- to	40/-	"	"
Ordinary	..	45/- to	46/-	"	"
Medium		50/- to	51/-	"	..
No. 1	..	..	55/-	"	"
Honey—White	..	..	3/-	per gall. delivered, Kgn.	
Pale	..	..	2/6	"	"
Light	..	..	2/-	"	"
Dark	..	..	1/6	"	"
Kolanuts—Sound quality, well cured			5/-	delivered	Outport
			6/-	"	Kingston.

Limejuice—For good green top pulp quality, 1/- per gall. delivered wharf Outport, in new puncheons.

Orange Oil—Sweet, sound quality 3/- per lb. delivered, Kingston

Sarsaparilla—Well cured, red roots, 38/- per 100 lbs., nett wts. delivered in Kingston.

AGRICULTURAL EDUCATION.

Florida Grower for September, 1933.

The efficient grower will acquaint himself with the major soil factors involved in crop production. Certainly, moisture, plant nutrients, soil organic matter, cover crops, injurious reactions, disease and insect organisms as well as simple soil factors will command some of his time and attention. But he who does not consider these soil factors seriously is not a true farmer and will soon pass out of the picture.

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POULTRY NOTES.

Progress is never ceasing but nevertheless there is always that section of thought which gets dug in on a certain line of knowledge and is very difficult to remove from their entrenchments which has always acted as a millstone around the neck of progress.

We reproduce in these notes "A Japanese Experiment with Soya," extracted from the *The Feathered World* of November last.

This is a definite attempt on the part of the Japanese for cheapening poultry rations by the substitution of vegetable proteins for animal proteins.

Other countries find it quite easy to produce with profit poultry and eggs on a large scale with egg prices around a shilling per dozen, and sometimes less, and poultry meat at one shilling per pound or less. This can only be achieved by well bred stock of outstanding performing ability both from the standpoint of egg production and the standpoint of weight production, and of course the cheapness and efficiency of the ration is possibly the most important ingredient to commercial success.

In Jamaica no serious study of local foodstuffs from the standpoint of their suitability, efficiency and cheapness in poultry production has been made, but that does not relieve the individual poultry farmer of his responsibilities and enterprise to do some little work in this direction on his own. We hope the article will produce some interest along these lines, and any information on the subject will interest us, and the Editor will be willing to correspond on the matter with a view of offering every assistance he is able to.

A Japanese Experiment with Soya.

For some years there has been a prejudice against Soya Bean as an ingredient in a breeder's mash. That this is nothing but a prejudice I have known for some time, as two or three farms have used the laying mash, as recommended on this page, as a breeders' mash and claim that it makes quite a good breeders' mash. It is rather difficult to tell people that they are doing wrong when they confront you with facts and figures. Nevertheless, I should not recommend using the laying mash as a breeders' mash as there is no doubt that the weight of evidence points to the fact that breeders' mashes are more successful when they contain less animal or vegetable protein than the average layers' mash. That this prejudice against the inclusion of Soya Bean in breeders' mashes is not quite dead, has been brought home to me on two occasions lately.

It is therefore important that we should examine a paper that has recently come from Japan and which shows careful investigation of the suitability of vegetable protein concentrates, and in this Soya Bean is the concentrate that has been chosen. The pens were watched very carefully, as one of the points was to find out whether the males attended to the females as often, when fed on Soya as a concentrate, as when fed with an animal concentrate.

The pen that received the Soya Bean had been bred from a series of birds which for four generations had received nothing but Soya Bean as concentrate, and the other pen was bred from birds which for four generations had received nothing but fish. A very thorough test indeed.

These are the two mashes:—

	A	B
Yellow Maize	45	45
Rice Bran	15	15
Rice Meal	17	17
Soya	30	0
Minerals	3	3
Fish	0	20

These are rather astonishing mashes, especially when considered as breeding mashes. It does show how dangerous it is to be dogmatic on the matter of feeding and how little even the best of us know. Here are two mashes which contradict everything that most of us have been teaching for years, in this country, at any rate. Some years ago, about five, I think, I tried rice bran and had to give it up, as it scoured the birds. I imagined at the time that it was due to the heavy oil content of the bran, and there was no doubt that the rice bran was causing the scouring, as it stopped as soon as the rice was omitted from the mash, and the only pen on the farm which was scouring was the rice bran pen. I gave up trying rice bran after that, but I am rather sorry that I did, if it can be used by other people in greater quantities than I did and without any ill effects. Here we have it used by a Japanese official station, and since I tried it we have had the work of Halnan and Cruickshanks on vegetable fats and the hen nutrition.

The danger of being definite about proteins.

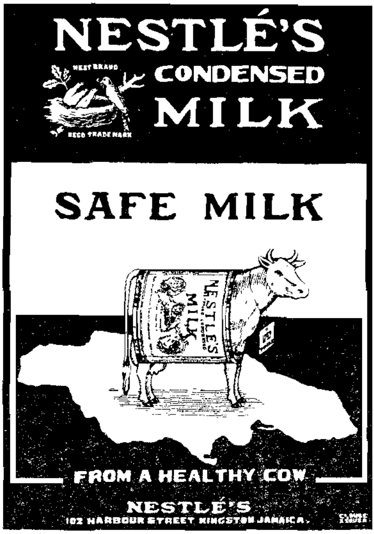
There is also in that mash an enormous amount of vegetable and animal proteins. In this country we are very definite as to the amount to be used and we do not like a great quantity in breeding mashes. In several other countries they like a quantity which seems enormous to us. Are we to say that they are wrong? With our knowledge I think we should be foolish to make that statement, especially as we must not shut our eyes to the fact that everything is not so beautiful in our own poultry garden as it might be, and that therefore people who make definite statements on such things as the amount of proteins to be used are taking on themselves a great responsibility, especially when we consider our ignorance of the subject. Remember that the people who worked out this set of experiments are not fools. From the paper before me I have no hesitation in making the statement that they are very knowledgeable people.

They include a mineral mixture in both mashes. This is the mixture by weight: 6 bone meal, 2 limestone, 2 sodium chloride (common salt). I suppose it was introduced in both mashes to equalise matters; but does it do that? In the vegetable protein mash the only important source of minerals is the rice bran, but in the other mash we have 20 per cent. of fish as well as the rice. It therefore does not equalise matters, but it gives one set of birds a better or a worse chance.

It was wise to increase the amount of Soya in order to make the mashes something like equal in the amount of added proteins. Fish meal (in this country at any rate), contains about two-thirds as much proteins as Soya, and therefore the experimenters have added one-third more Soya Bean meal.

The test shows that there is little difference in the two mashes, except in one very important factor. The males fed on the Soya mash do not attend to the females as often as the males that are fed on the animal

food. In fact, they do this only about half the number of times. This means that we can only mate a limited number of hens when vegetable proteins are used. In fact, the Japanese experimenters found that when these were used it was not wise to use more than seven or eight hens. We know that we can mate more than that with the average male on the breeders' mashes that are in use in this country.



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BRANCH NOTES.

ST. MARY: Labyrinth.—17.1.34. To-day being the regular monthly meeting-day, Mr. L. A. M. B. Coke, the Instructor, was present in the district from 8 30 a.m., carrying out practical demonstrations on the holdings of members, much to their enthusiasm and interest. He continued until late in the afternoon. Towards twilight, the meeting was held. Although rain intervened in the afternoon, there was a good turnout of members and visitors. The President. Mr. A. Morris. presided. Among other items, the House listened to very encouraging remarks by Mr. Harold L. Roper, who reminded them of his interest in the effort to get a Post Office for the district. He promised to help in the cause as soon as conditions afforded his doing so. Mrs. H. L. Roper then gave some interesting jottings on the record of work of he Branch's experimental plot. The President and Secretary joined in thanking very heartily Mr. and Mrs. H. L. Roper for their efforts in promoting the growth of agriculture in this district. Very gratifying remarks were also made on the energy which Mr. Coke put in his work. After several minor matters, was dealt with, the meeting adjourned with the singing of the National Anthem.

A. P. ATKINSON,
Gayle P.O. Secretary.

Baxter's Mtn.—16.1.34. This Branch met at noou to-day. Mr. S. W. Strachan opened with prayer. He then welcomed the Instructor and the visitors. The Secretary read the m tes and they were adopted. Correspondence was read. A short discussion ensued on points arising out of the minutes. With regard to Mr. Brown's suggestion for a monster meeting, this had to be deferred owing to the weather. The Secretary gave a New Year's Greeting to the members, visitors and Instructor, followed by greetings from Mr. G. Henderson and the President. The courtesy of the floor being extended to the visitors, Mr. Williams, President of the Tranquility Branch, addressed the meeting. He entreated members to "Press Onward," to start propaganda work and so augment the membership. Mr. M Leary, another visitor, advised everyone not to put all eggs into one basket, viz.: the banana basket. Let some be in the yam, some in the coffee basket and so on. Mr. Wray reciprocated the kind welcome extended him. He had brought with him essrs. McLeary and Williams to see the work being done here, and to stimulate the Branch. He eulogised the ranch in carrying ou meetings whether an Instructor was present or not, and promised as many visits as possible in the dry weather as during rainy weather it's always impossible to ford the river. Mr. Wray explained that meetings are for getting together and giving views, also that demonstrations have lastiug effects. The remarks of Mr. Williams were endorsed by Mr. Wray re the percentage of members of the J. A. Society, and suggested a working committee to augment this year's membership. He advised attention to neglected coffee fields. He wished members the best of health and consequently prosperity for 1934. The President, on behalf of the Branch, thanked Mr. Wray also Messrs. Williams and McLeary for such able advice. The Instructor demonstrated in the School Garden, pruning coffee in the presence of the members and school children, and all left feeling benefitted by the meeting. The Roll Call showed 6 members, the Secretary, Instructor and 5 visitors present. The meeting rose at the singing of the National Anthem.

Annotto Bay P.O. R. J. LAWSON RICKETTS,
Secretary.

Albion Mtn.—Meeting held 4th January, 1934. There were seven members present. The Chair was occupied by the First Vice President. After prayer the minutes of last meeting were read and confirmed. The road question was discussed and the members expressed the hope that the Parochial Board would do their best this year to improve the

condition of all roads. Mr. Taylor, delegate to the Half-Yearly Meeting at Highgate, gave his report. A sum was voted for delegate's expenses to the Half-Yearly General Meeting. The Secretary urged the necessity of more regular attendance of the members at meetings. After the National Anthem, the meeting adjourned.

Port Maria P.O. J. H. PETRIE, Secretary.

Rock River.—Meeting held 22nd January. Present: Messrs. A. V. Ross, President; E. B. Ross, 1st Vice-President; Charles Bailey, 2nd Vice-President; three other members, some visitors, Mr. Carrington, Supervisor of Instructors and the Secretary. Minutes of the last meeting were read and confirmed. As arising out of the minutes, the President reported that an application for £100 grant for the making of foot bridges was made, but the Parochial Board could not state directly whether the bridges or a deviation would be made. Mr. Carrington explained that he tried to be present as he knew that the Instructor would be absent. He then gave a lengthy address, encouraging the audience to care their coffee, clearing away some when they are too thick, and they would be recompensed in the weigh . He also spoke on Panama Disease and the storm in connection with the planting of bananas. The best time to plant, he said, is from February to April. Then there should be a judicious growth of trees. He also encouraged the cultivation of the sugar cane. A vote of hanks was accorded him. The meeting terminated with the singing of the National Anthem.

Mt. Regale P.O. J. A. BOWEN, Secretary.

Tryall Hill.—On the 15th January, the regular meeting was held. Present: Mr. J. S Dyke in the Chair, 5 other members and the Secretary. Minutes of last meeting were read and confirmed and matters arising out of the minutes discussed. Chairman called attention to the unsatisfactory manner in which the work on the Parochial Road in the district is being handled and expressed the opinion that the attention of the Assistant Superintendent should be called to the matter. Ten shillings per chain was considered inadequate for the work. The Instructor was unable to attend the meeting as he was serving the Long Road Branch. The report of the delegate to the Half-Yearly Conference was given. Although the Branch did not get its desire regarding the treatment of Panam Disease, yet it was pleased to know that the Government is still in sympathy with the suff-rers in the Panama diseased area. Methods of treating this disease was freely discussed and it was thought that the views expressed might be of use to a sympathetic Department, seeking to remove the distressed conditions of this Colony. The idea of the Government's willingness to take up the "Corn Kyln" was well received. A vote of thanks was moved to the delegate for his interesting report. The Secretary was advised to write to the Jamaica Agricultural Society regarding Authorised Person, Mr. J. C. Hird and the Instructor, that Mr. C. Heslope would be pleased to have the experiment started on his holding next month. After a very interesting meeting the meeting adjourned with the singing of "God Save the King."

Annotto Bay P.O. A. A. CONSTABLE, Secretary.

TRELAWNY: Bunker's Hill.—Meeting held 4th January. was opened with prayer. There were present: Instructor, Mr. F. W. Kelly, 14 members and some visitors. Mr. E. B. Pickering, President, presided. Mr. D. L. Ogilvie on behalf of the Branch, welcomed the Instructor and he suitably replied. The minutes of the last meeting were read and confirmed. Matters arising therefrom were discussed. Correspondence was read. The Secretary was instructed to write to the Parent Society enquiring about the promised seeds. Three Authorised Persons reported "all correct." Three new members were enrolled. The Instructor gave a very interesting lecture on forking and drainage. He was thanked. Members whose fields were visited during the day expressed their appreciation for the practical work done by the Instructor. After dealing with minor matters the meeting adjourned after the singing of the National Anthem.

Wakefield P.O. P. H. BROWN, Secretary.

Deeside.—Meeting held 3rd January. There were present, Mr. F. W. Kelly, Agricultural Instructor, 14 members and a number of visitors. The 1st Vice-President, Mr. H. Scott, occupied the chair. He made a few opening remarks respecting God's protection during the past year. A letter was submitted from Mr. J. E. Haye (President), regretting his absence on account of illness. Sympathy was expressed and the hope for his speedy recovery. The minutes of the previous meeting were read and confirmed and matters arising therefrom dealt with. Mr. D. Clarke on behalf of the members expressed appreciation of the seeds that were given to the Branch. The matter of the reduction of Crown Lands' rent was canceled. The cultivations of Messrs. D. Clarke and R. Green were visited by the Instructor. Mr. Clarke spoke of the wonderful instructions he

received. The Instructor expressed pleasure at being present, and wished the Branch a bright and prosperous New Year. He went right to his subject, "The planting of bananas and coffee," and with his usual volubility continued for near upon an hour and a half, and gave full instructions on the subject. A few questions were asked and satisfactorily answered. A hearty vote of thanks was given to the Instructor. Two Authorised Persons reported all correct. A new member was enrolled. The meeting terminated with the singing of the National Anthem.

Deeside P.O. A. O. E. WRIGHT,
Assistant Secretary.

Warsop.—Meeting held 16th January. Present: Messrs A. A. Woodfin, 2nd Vice-President in the chair, the Treasurer, the Instructor, 5 other members, a few visitors and the Secretary. The minutes of the previous meeting were read and confirmed, and matters arising out of the minutes were dealt with. Correspondence was also read. Messrs. Bailey and Woodfin—newly appointed Authorized Persons received copies of the Law relating to Authorized Persons. The Instructor gave a very useful and able address, the object of which was to start "Propaganda" work with a view of increasing the membership of the Branch. He made the following points: 1. A member has the opportunity of taking part in the Government of his country, as he will be placed in a position to make representation in matters affecting the country. 2. He has a paid officer to instruct him. 3. He associates with people both in the higher and lower walks of life, thus getting an interchange of ideas. 4. He gets educational benefits also. Arrangements for the distribution of seeds, got from the Parent Society were made. Meeting terminated with the singing of the National Anthem.

Warsop. U. K. WALTERS,
Secretary.

PORTLAND: Regale.—Meeting held 23rd January. Present were: Messrs. A. W. Campbell, President; J. H. Wright, 1st Vice-President; G. W. Wray, Instructor; 10 members, a few visitors, and the Secretary. The meeting was opened with prayer by the President who extended a cordial welcome to all. The 1st Vice-President gave a report of the Social held on Christmas night and reported profit of £1 3/- after clearing all expenses. It was decided that the above amount be handed to the Treasurer to be placed at the credit of the Branch. It was decided that the Treasurer present a financial statement of the Branch at the next meeting. The President moved that the Society's Funds be put in the Government Savings Bank. After discussion on the suggestion of the Instructor, the matter was deferred for reconsideration at the next meeting. Authorised Person Henry reported an arrest made on the 20th January. The Instructor at this juncture gave a very impressive address in which he made reference to the remarks made by the new Director of Agriculture on the 16th December, on how the fertility of our cultivated lands can be replenished and maintained. The Instructor gave an illustration on the way the fields should be weeded in rainy seasons and the most advantageous method of trenching and manuring. He next advised on the necessity of every planter keeping live-stock for constant supply of manure for the lands. Votes of thanks were accorded the Instructor after which the singing of the National Anthem terminated the meeting.

Spring Hill. H. J. DUNN,
Secretary.

Balcarres.—Monthly meeting held January 24th. Present: Mr. F. E. Nesbitt, President; G. W. Wray Esq., Instructor; 10 other members, 5 visitors and the Assistant Secretary, Mr. D. E. Nesbitt. An apology for absence was tendered from the Secretary. The President welcomed all, it being the first meeting of the year; also the first since August. In his remarks he said we ought to be grateful to God, seeing that we have not fared as badly as many of our sisters and brothers in other parts of the Island have done from the storms. He also made a few remarks relative to the Instructor, encouraging all to stand by him and so help to make his work successful. The minutes of the last meeting held August 23rd, were read and confirmed. In the Instructor's remarks, he said this being a new year, he would wish that this year (1934) won't be as bad as last year. He was very sorry that the Branch was unrepresented at the last Half-Yearly General Meeting in Kingston. He was therefore urging an increase of membership this year—as on a whole, "Jamaica," is purely agricultural, and strengthening the membership of the Jamaica Agricultural Society would mean an increase of the Government's Grant, also more men would be in the field. He gave a few examples where the more the membership the more our needs are attended to. He referred to an address given at a Conference in St. Mary by Mr. A. C. Barnes, Director of Agriculture, stating that the gentleman is a new comer, and has already found out a weak point, viz.: the infertility of our lands. He said it is much easier to maintain the fertility than to replace it; and all this is caused through the lack of methods to check our land fertility from being taken away by rushing hillside streams. He was therefore advising trenching in

the proper way. (He gave illustrations). Next he stated that in rainy weather too much cleaning of the soil is incorrect, low bushing with a machette is preferable. He next spoke at length on the storing of manures. After his lengthy and interesting talk, he asked that twice as many members be present at next meeting. A vote of thanks was accorded him. Four Authorised Persons were present and reported all O.K. After minor matters were dealt with the meeting terminated.

Balcarres P.O. (Mrs.) A. V. Nesbitt,
Secretary.

Tranquility.—Meeting held 8th January. Present: Mr. M. C. Williams, President; Messrs. J. K. Giscombe, 2nd Vice-President; G. W. Wray, Agricultural Instructor, nine other members, the Secretary and many visitors. The minutes of last meeting were confirmed and matters arising therefrom discussed. Correspondence was dealt with. Authorized Person, William Wray, reported two arrests. The Instructor gave a masterly address on the pruning of coffee. A vote of thanks was accorded him. A new member was enrolled. Meeting adjourned.

On Monday 8th January, commencing at 7 30 p.m. a Concert was held in aid of the Tranquility Branch. The same was determined a big success. It is hoped that the interest in the Branch will be greatly enhanced; and that the membership will make rapid progressive strides in the coming year. The concert brought an income to the Branch of twenty-four shillings. Mr. G. W. Wray was the Chairman and he carried out the obligations in fine style.

Balcarres P.O. N. W. McClery,
Secretary.

ST. CATHERINE: Hampshire.—Meeting held January 30. Among those present were: Mr. N. Hudson, 1st Vice-President, Revd. E. H. Greaves, 2nd Vice-President; Messrs. O P. Martin Instructor and E. N. Maxwell, Assistant Instructor, 3 other members and the Acting Secretary. Distinguished visitors among others were Hon. T. J. Cawley, 1st Vice-President of the Parent Society and Mr. Glaister Baxter, Secretary and Mr. E. L. Johnson the new teacher. The 1st Vice-President explained that the spar ity of the attendance was due to the inclemency of the weather. Rev. E. H. Greaves who presided, extended a warm welcome to the Hon. T. J. Cawley and Mr. Glaister Baxter and introduced Mr. E. L. Johnson to the members. The minutes were th n read and confirmed, and matters arising therefrom dealt with The citrus nursery was reported on favourably; the nu sery was visited by the Instructor and Assistant and some members that day. A big demonstration was carried out at Mt. Pleasant. Correspondence was dealt with. Mr. E. N. Maxwell spoke on the coffee industry. Mr. Martin spoke on hillside cultivation, correcting the usual wrong way of trenching as is generally met with. The Hon. T. J. Cawley spoke on economic conditions, growiog, preparing and marketing of crops, banana insurance scheme and agricultural education and credit and thrift. Mr. Baxter said that the visit of the Hon. Mr. Cawley was one of encouragement, his one of inspection; that all agriculturists should allow Instructors all freedom in their duties, learn correct methods and pattern them. He said they should even give up a small portion of their cultivation to the Instructor watch results and then do likewise. The Instructors are out to assist and it is the duty of all to get their assistance, etc. The speakers were thanked. Reports of Authorised Persons were given and in speaking upon their duties, Mr. Martin expressed the desire that Mr. C. Waller be specially commended for his activities. A few other items received attention and the meeting terminated with the singing of the National Anthem.

Riversdale P.O. E. A. L. Rowe,
Acting Secretary.

Princessfield.—Meeting held 29th January, 1934. The meeting was opened with prayer. There were present: Mr. L. L. Carrington, Supervisor of Instructors; Mr. V. P. DaCosta, Mr. W. Brown, 12 members and 8 visitors; also Instructors O. P. Martin and Maxwell. The minutes of the previous meeting were read and confirmed. As arising out of the minutes, a letter was read from the Clerk of the Parochial Board, relative to the Bamboo Gully Hill Road. After this the Coffee Competition was opened. Mr. V. P. DaCosta was asked to take the chair whilst Mr. Carrington was asked to be one of the judges and associated with him was Mr. W. Brown an experienced produce dealer. After the judging of the exhibits the prizes were handed to the winners by the Chairman, who gave a very instructive address with reference to the motive of the Competition, and the high standard of quality of the article to be reached. Mr. Carrington dealt with the various phases of the Competition stressing the various defects as he saw them, and also pointing out his disappointment in seeing so small a number of competitors. He however, hoped that this was a sign of a better future. Mr. Brown also addressed the meeting and stated his gratification of the present Competition over the last one, at which he was also judge. He also gave many hints that would be useful to the producers. Mr. Cornish, a visitor who has done much travelling abroad and gained wide experience, also

gave an address. In it he made reference to the importance caterers of coffee abroad placed on their trade and stressed the necessity for proper production. The President and the Agricultural Instructor also gave brief addresses thanking the visitors and competitors for their interest. Special mention was made of the subscribers to the prize list including Mr. Sydney Barton of Barton's Hardware, the Jamaica Agricultural Society, Mr. F. A Anderson, J.P. of Linstead, Mr. V. P. DaCosta of Riversdale, and Mr. W. Aris of Linstead, and thanking them for their kindness in contributing to the promotion of a scheme to improve conditions in one of the oldest industries of the country. There were eight prizes competed for in three grades, which were awarded as follows:—Pulped and washed, 1st grade, 1st prize, Mr. J. Brooks. 2nd prize, Miss Nora Price. 3rd prize Miss H. Richards. Chummed and washed, 2nd grade; 1st prize, Miss H. Richards. 2nd prize, Miss Nora Price, 3rd prize, Mr. James Mitchell. Double husk, 3rd grade; 1st prize, Miss H. Richards. 2nd prize, Miss Nora Price. The meeting was brought to a close by the singing of the National Anthem.

P. G. C. GRAHAM,
Assistant Secretary.

Content.—Meeting held 20th January. Present were: Mr. J. W. Douglas, Treasurer; F. A. Wilson, Assistant Secretary and eight other members. The President gave an appropriate address. Minutes of the last meeting were taken and confirmed. As matters arising therefrom the President apologised for not attending the Half-Yearly General Meeting as was proposed. Correspondence was taken. Seed distribution was carried through each member receiving a portion. Minor matters were dealt with. An interesting meeting was brought to a close by the singing of the National Anthem.

St. Peters P.O. F. A. WILSON,
Assistant Secretary.

MANCHESTER: Ebenezer.—Meeting held 25.1.34. Present: J. U. Thompson, 1st Vice-President in the chair, J. T. Morgan. 2nd Vice-President; the Secretary, six other members, twenty visitors and twenty-five school children. The minutes were read and confirmed. As arising therefrom, Mr. Howe, delegate to the Half-Yearly Meeting of the Manchester Branches Associated, reported that the resolution re removal of the tax on donkeys was not countenanced by the Committee of the M. B A. because of the present need of funds by the Parochial Board to repair storm damaged roads and to carry on relief work. Discussion of the subject "The credit situation in Jamaica" followed. It was ably led off by Mr. Howe, at the suggestion of the Vice-President and those present took part. As members want to give the matter more careful consideration, it will be brought up at the next meeting. Distribution of corn and peas for planting to storm sufferers followed. The Branch members and others wish to thank the Agricultural Society and all the other persons concerned in making it possible to help those who needed the seeds. Approaching darkness forced the termination of the meeting.

Spur Tree P.O. H. L. BLACKWOOD,
Secretary.

Mile Gully.—Meeting held on 26.1.34, with the President in the chair. Minutes of the previous meeting were read, adopted and confirmed and matters arising therefrom discussed. As arising out of the minutes the new "Spray Pump" was briefly discussed. A new member was enrolled. One Authorised Person was present and reported "all correct" in his district. The 1st Vice-President emphasized the matter of regular attendance of Authorised Persons at meetings. The President also stressed the matter. The delegate to Half-Yearly Meeting gave a concise report, emphasizing the most important matters dealt with, i.e., resolutions moved and carried and Dr. Washburn's fine address on the treatment of that dreaded disease, "Yaws." A vote of thanks was accorded the delegate. Mr. A. F. Clarke, spoke of the spraying of citrus now, as the Spring is coming on. He recommended a mixture of soap, kerosene oil and jeyes as an effective cure for "Black Ants." The President spoke of the attack of the ants on oranges, causing some loss. A resolution was moved and seconded to be forwarded to the Parent Society re the main road leading to Comfort Hall and Balaclava which is blocked by a large lake. Some minor matters were dealt with after which the Roll was marked and the meeting terminated with the singing of the National Anthem.

Mile Gully. T. A. MORRIS,
Secretary.

WESTMORELAND: Georges' Plain.—Meeting held 11th December. Present: Messrs. S. D. Porter, 1st Vice-President; 3 other members, the Instructor, Mr. J. A. Graham, one visitor and the Secretary. Reading and confirmation of the minutes followed the opening remarks of the Chairman. Arising out of the minutes the matter of seed distribution was discussed. The Instructor assured the house that the seeds would soon arive and that distribution would be made as quickly and as judiciously as possible. Corres-

pondence was fully dealt with. Mr. D. D. Edman was appointed delegate to the Half-Yearly General Meeting. Next was taken the report of the delegates to the Half-Yearly Meeting of the Westmoreland Branches Associated. The Secretary gave as full a report as he could; it was supplemented by the Instructor. Both were thanked for the report and the meeting terminated withthe singing of the National Anthem.

George's Plain P.O. R. C. TAVARES,
Secretary.

CLARENDON: Mt. Providence.—Meeting held January 9th. Present: Instructor Shirley and 12 members with Mr. Chas. Sweeny presiding. Minutes of the last meeting were read and confirmed. Several matters of local interest were dealt with, after which the Instructor addressed the meeting on "Agricultural Economy," in the course of which he advised members to make a special study of their profession. Other points stressed were (a) unwise to grow two antagonistic things together, e.g. fowls and vegetables; (b) unwise to be ruled by false sympathy; (c) Best to grow the kind of crop that will thrive best in the soil available The address was brimful of gricultural mottoes for the New Year. A vote of thanks was moved by the Secretary. The meeting then terminated.

Wood Hall P.O. G. S. NEITA,
Secretary.

Tweedside.—Meeting held 23rd January. Present: President, 1st and 2nd Vice-Presidents, the Treasurer, the Revs. J. W. Knight, R S. Cummiugs, R. U. Smith, O. T. Johnson, 30 members, over 40 visitors and the Secretary. Meeting opened with prayer. Minutes of the previous meeting were read and confirmed and matters arising therefrom discussed. A cordial welcome was extended by the Secretary to the ministers and all present. The Rev. O. T. Johnson gave a very practical address showing the importance of sticking to the soil and of supporting native industries. A hearty vote of thanks was accorded him and the meeting adjourned with the singing of the National Anthem.

Alston P.O. O. A. MALCOLM,
Secretary.

ST. ELIZABETH: Kilmarnock.—Meeting held 9th January. The chair was occupied by Mr. Jas. Hart, 1st Vice-President. Meeting began with prayer, by the hairman. After the reading and confirmation of the minutes, matters arising therefrom were dealt with. Resolution re Pimento was deferred for next Half-Yearly Meeting. Authorized Persons reported all correct. The Secretary was instructed to write again to Corporal Rattray of New Market Station inviting him again to the next meeting. Financial report was also derferred for the annual meeting. The Secretary was asked to write the Westmoreland Parochial Board, reminding them of the condition of the road since the October weather, and t Inspector Murphy for badges and handcuffs for Authorized Persons. Nursery bed arranged to be forked on the 6th February for the transplanting of seeds and vegetables. Roll all showed 11 members present, 8 visitors. A new member was enrolled. Instructor gave a stirring address on the pruning of coffee. A recipe was given for destroying cut worms. Xmas messages from the Journal sent by the Governor and others were read. A short discussion took place re Loau Banks which was very interesting. It was thought that Branches shonld encourage a Storehouse Scheme, for crops, which is very essential. Instruetor Graham at this stage, asked to be excused from the meeting, as it was getting late, and he had to get across the waters by boat. The meeting was rather lively and a good deal of interesting conversation took place between members after which the meeting terminated by the singing of the National Anthem.

New Market P.O. J. E. MONTEITH,
Secretary.

Western St. Elizabeth.—Meeting held 2nd January. Along with members of the Society we had the Agricultural Instructor, Mr. Lynch, and the Supervisor of Instructors, Mr. Bacquie. Both gentlemen were extended a hearty welcome and both spoke on the usefulness of Branch Societies in addition to other subjects. Some of these subjects arose out of matters arising from the minutes of a previous meeting. Mr. Bacquie urged the planting of catch crops such as we have been accustomed to plant. Mr. Lynch, in his address, briefly enumerated some of the achievements of this Branch, which were commendable. A resolution conveying thanks to the Board of Management for free seeds was passed.

Black River P.O. B. A. J. FORBES,
Secretary.

Springfield.—Meeting held 5th January. Present: Rev. W. J. Driver, President, Instructor G. R. Graham, 13 other members and the Secretary. Minutes of last meeting were read and confirmed and matters arising therefrom dealt with. The delegates to the Half-Yearly Meeting of the St. Elizabeth Associated Branches gave their reports.

Mr. Graham supported the remarks of the delegates. There was a short discussion on the points raised by the delegates and this proved helpful. A discussion on the best variety of seed potatoes for the district was led by Mr. M. T. Coke. The members wanted a cheap variety and one that will stand up against adverse weather conditions, and be also readily marketable. The Instructor recommended Green Mountain which he said will meet the case as nearly as possible. The members went into the School Garden where Mr. Graham demonstrated the best way to transplant citrus seedlings. Each member took an active part and laid out a bed to be budded when the plants have reached the required size. Mr. Graham inspected the School Garden. Meeting adjourned.

Springfield P.O. J. A. WOODSTOCK,
Secretary.

Brompton.—Meeting held 25th January. Present: J. E. Boothe, President; W. I. Poyser, 1st Vice-President; six other members, the Secretary and few visitors. Meeting opened with prayer after which the Secretary welcomed the members extending to them the greetings of the New Year. He expressed the hope that the visitors would shortly join the Branch. The matter of the Society's billy goat was discussed and it was decided to do away with the Saanen billy being a milch strain and get—if possible—another kind suitable for mutton. Mr. Boothe, who was a delegate to the meeting of the St. Elizabeth Branches associated, gave his report. A hearty vote of thanks was accorded him. Authorised Persons, G. Hamilton, D. Keane and C. B. Miller reported everything O.K. The Secretary was instructed to write to the Parochial Board reminding them of the much needed water supply for Brompton and surrounding districts also the improvement of the Brompton Mountain Road. An apology was made on behalf of the Instructor who was unavoidably absent. Several matters were dealt with after which the meeting terminated with the National Anthem.

Fyffes Pen P.O. G. W. S. WYNTER,
Secretary.

ST. JAMES: Roehampton.—Meeting held on the 13th January. There were present: Messrs. Reggie Heron, 1st Vice-President, presiding, W. Plummer, 2nd Vice-President, eleven other members, a large number of visitors and the Secretary. After the reading and confirmation of minutes of meeting held in December, matters arising therefrom were dealt with. The delegate to the Half-Yearly General Meeting gave a brief report and promissed to give more details at next meeting. Redpeas and Cowpeas were distributed to members and others present. The meeting was brought to a close with the singing of the National Anthem

Anchovy P.O. J. AUG. RHODEN,
Secretary.

ST. ANN: Bohemia.—Meeting held 25th January. There were in attendance: Mr. F. W. Kelly, Agricultural Instructor, the President, Mr. J. B. Graham and eight other members. The President expressed the pleasure of the House at the energy of the Instructor working with this new Branch during the past year and wished for a continuance of interest. Members were asked to work for the preservation and increase of the vitality of the Branch. Messrs. Edward and Edwin Smith wished for the Instructor a successful year of work and reviewed with gratitude the efforts of the past eight months. The minutes of the last meeting were read and confirmed. Re Branch of Govt. Savings Bank for Lorrimers, it was decided that a resolution expressing the great need for this convenience be forwarded to the Parent Society and to Government and that the Lowe River Branch be asked to co-operate. The Secretary was instructed to carry through the affiliation of this Branch with the Manchester Branches Associated. Mr. Kelly gave a resume of the Half-Yearly General Meeting re Travelling Licenses and spoke on sprays for citrus and vegetables. He promised to speak on poultry at the next meeting. Authorised Persons gave their reports. In the forenoon the Instructor gave a lesson on budding to the pupils of the Bohemia School. Bahia and Washington Navels (Oranges) and Marsh Seedless grapefruit were put on limes.

Lorrimers P.O. V. C. ROBINSON,
Secretary.

Other Reports Received.

Branch.	Date of meeting.	Attendance.	Business.	Secretary.
St. Mary.				
Epsom	3.1.34	18	Addresses by President and Instructor Wray.	L. S. Johnson (Acting.)
Marlborough	23.1.34	10	Water Supply: Foot Bridges. Cane Mill.	D. A. Ford
Oxford	16.1.34	10	Report of delegate on General Meeting. Resolution re road.	R. A. Thomas
Wood Park	10.1.34	21	Report of delegate to Highgate Conference. Resolution re cases for non-payment of taxes.	C. L. A. Stewart
Central St. Mary	4.1.34	12	Authorised Persons Address by Secretary	C. C. Lee
St. Elizabeth.				
Middle Quarters	4.1.34	—	(Annual Meeting.) Rice industry. Small stock	..
St. Catherine.				
O'Meally	25.1.34	Over 40	Journal. Roads. Addresses by Instructor Martin and Assistant Instructor Maxwell.	S. H. Anson
Philipsburgh	8.1.34	27	Water Supply. Small stock, Poulty keeping.	C. B. Stanbury
Trelawny				
Wakefield	2.1.34		Road Timber Plants. Address by Instructor Kelly.	E. S. Bliss
St. Andrew				
Hagley Gap	26.1.34		Giant Plantain Medical and Postal Service	J. B. Heywood

Jamaica Agricultural Society.

MEMBERS' EXCHANGE COLUMNS.

Members of the Society are invited to utilize this page as a very cheap means of advertising produce, livestock, poultry, plants, etc., for sale or for anything needed. Cost of each advertisement—6d.

The Society will be willing to carry through purchases and delivery on behalf of members

The following are offered *for sale*:

Description Produce or Livestock.	Price.	Name.	Address.
Cabbage Plants	To be arranged	Secretary	J.A.S.
Marsh Seedless Grapefruit Plants	£7 10 0 per 100	E. M. Clark	Shooters Hill P.O.
Silver Cluster	£7 0 0 per 100	"	
Estrella Pulper: A1 condition	£5 or exchange for stock	Secretary	J. A. S.
Pure bred and half bred Esses and Berkshire pigs, ready for delivery	On application	W. Harper Watson	St. Margaret's Bay.
One Montgomery-Jersey bulkin, 2 years old	To be arranged	Penkeeper	Stony Hill

GOVERNMENT STUD FARM

GROVE PLACE.

The following Small Stock are available for service:

* * *

Imported Suffolk Ram, TENDRING TOKEN.
Excellent specimen of breed. Weighs 254 lbs.
Fee. 5/- per Ewe. One month's free pasturage—1/6 for first month after free month—after that, 5/- per Ewe per month.

* * *

Imported Toggenburg Buck (Ram Goat), STOCKWELL CALLUM.
From 5 quart Strain.
Fee 2/- for immediate service. 5/- per Doe, if left for a month.

* * *

Imported Berkshire Boar, RICHINGS BON CONCORD.
Weighs 500 lbs. Middle-type short-quartered, early maturing breed.
Fee—5/- per sow with three days' free keep—after that sixpence per diem for keep

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BULLS STANDING FOR SERVICE.

JERSEYS:

Glen Fontaine's Lad.	(Imported)
Glen's Prefect	(Native)
Etta's Pogis	(Native).

MONTGOMERRY

CORTES	(Montgomery-Guernsey).
JUSTICE	(Montgomery-Brown Swiss).

RED POLL

LEONE'S TRUE LAD. (Imported Red Poll Scales just under 2,000 lbs. Winner of 37 prizes in U.S.A. Grand Champion Chicago International *Fair 1928*).

FEE for BULLS. 10/- per Cow, with one Month's free pasturage—after that 4/- per month.

NOTE. COWS MAY BE SENT FOR SERVICE TO GROVE PLACE SIDING FROM ANY RAILWAY STATION FOR AN INCLUSIVE FEE OF ONE POUND. THIS AMOUNT COVERS SERVICE AND COST OF TRAINAGE TO AND FROM GROVE PLACE.

The Service Fee to the Imported Proof Ass, Kentucky Boy, has been reduced to £1 per mare.

All Service Fees are payable in advance. Animals must be free from contagious and other diseases, and be clean of ticks.

* * *

For all particulars apply to:

The Superintendent,
Grove Place, Mile Gully P O.

THE JOURNAL

OF THE

Jamaica Agricultural Society.

The more people do the more they can do; he who does nothing renders himself incapable of doing anything; while we are executing one work we are preparing ourselves for undertaking another.

Vol. XXXVIII. MARCH, 1934. No. 3.

BOARD OF MANAGEMENT.

The regular monthly meeting of the Board of Management of the Jamaica Agricultural Society was held at the office of the Society, 11 North Parade, Kingston, on Wednesday the 7th February, 1934, at 11.30 a.m. There were present: The Hon. T. J. Cawley, First Vice-President, presiding, the Hon. A. C. Barnes, Director of Agriculture, *ex officio*, Messrs. U. Theo. McKay, T. R. Williams, Hon. W. H. W. Westmorland; Messrs. P. St. L. Bacquie and L. L. Carrington, Supervisors of Instructors and the Secretary, Glaister Baxter. The Rev. W J. Thompson, Hon. G. Seymour Seymour, O.B.E., Messrs. H. A L. Simpson, O.B.E., H. E. Lewis and T. P. V. McDaniel took their seats shortly after the meeting began.

Apologies for Absence.

The Secretary tendered apologies for absence from Major G. B. Pease and Mr. W. Harper Watson.

Confirmation of Minutes of the previous Meeting.

The minutes of the previous meeting having been circulated were taken as read.

Mr. U. Theo. McKay moved, seconded by Mr. T. R. Williams, that they be confirmed.

This was carried.

Matters arising out of the previous Minutes.

(a) As arising out of the Minutes, the Board decided that the resolution re compassionate allowance for Mrs. Barclay standing in the name of Mr. Watson be deferred until he was able to attend.

(b) *Revision of Estimates for* 1933-34.—The Secretary submitted Revised Estimates for 1933-34 to obtain the approval of the Board for certain changes as against the original Estimates.

After consideration of the figures submitted, Mr. McKay moved, seconded by the Hon. W. H. W. Westmorland, that the Revised Estimates as submitted be approved and adopted.

This was carried.

(c) Letter from the Hon. G. Seymour Seymour acknowledging congratulations of the Board extended to him for the honour of O.B.E. conferred on him in the New Year Honours List, was read and tabled.

(d) A letter from Instructor O. P. Martin, acknowledging with thanks letter of condolence, was read and tabled.

(e) *Secretary's Statement.*—The Secretary made the following statement:—

Gentlemen,

"I invite attention to Mr. McKay's motion at last meeting with reference to the Board of Management going into Committee to consider revision of the Estimates for 1934-35.

Circular letter to the Instructoral staff was issued with reference to their co-operation regarding ganja.

The Secretary consulted with the Director of Agriculture regarding the proper storage equipment for minor crops, but no decision as to costs can yet be arrived at as the Director of Agriculture is making enquiry abroad for quotations for the necessary equipment.

The various Branch resolutions dealt with at the last meeting of the Board have been forwarded to the proper authorities concerned."

The Director of Agriculture said that as arising from the Minutes of the previous meeting, he had notified the Secretary that an opportunity had occurred to dispose of the bull in St. Elizabeth now doing service for the Society, at a price satisfactory to the Department. Another bull would soon be secured for the purpose of substituting the one to be sold.

The Secretary was directed to write a letter to the Director of Agriculture thanking him.

The Board decided that as the report of the Special Committee for filling vacancies on the Instructoral Staff influenced the revision of the 1934-35 Estimates, that that item on the Agenda be then taken.

The Secretary then read the report of that Committee as follows:—

5th February, 1934.

To the Board of Management:

Gentlemen:

Your special Committee appointed to consider the question of filling the vacancies on the Instructoral staff met at the office of the Jamaica Agricultural Society on Monday February 5th, 1934, at 11.30 a.m.

Letter from the Secretary to the Director of Agriculture and his reply bearing on the subject was considered and it was decided to recommend to the Board acceptance of the arrangement outlined in the Director of Agriculture's letter.

We recommend that the appointment of four new Assistants be made and that the positions be immediately advertised for at commencing salary of £225 per annum for a probationary period of six months and when these Assistants are given separate districts that their salaries be increased to £275.

We also recommend that some changes be made in the boundaries of the Instructoral Districts which are outlined by the plan attached, and that the Instructors be allocated as under:

St. Thomas. Entire parish—U. A. McLaren.
Portland, entire parish—Geo. Graham and Assistant.
St. Mary, entire parish—L. L. Carrington, L. A. Coke and Assistant.
St. Andrew, entire parish—A. P. Hanson and Assistant.
St. Catherine, entire parish—O. P. Martin and Assistant.
St. Ann (Eastern)—C. V. Atkinson.
Western St. Ann and Trelawny—C. M. A. Robotham
Trelawny (Central)—F. W. Kelly.
St. James—W. D. Marr.
Hanover—C. C. Hastings.
Westmoreland—J. A. Graham.
Part Westmoreland and St. Elizabeth—G. W. Wray.
St. Elizabeth—H. W. Lynch and Assistant.
Manchester, South and Central—H. A. Darby.
N. Manchester and Christiana and Frankfield areas—M. N. Thompson.
Clarendon—W. L. Shirley.

Yours very truly,
(Sgd.) T. J. Cawley,
„ U. Theo. McKay,
„ Glaister Baxter,
Secretary.

P.S. I do not agree to the appointment of 4 new Assistants.
U. Theo. McKay

The Secretary then read letter from the Director of Agriculture, No. BU 799, dated the 1st February, 1934, referring to the filling of vacancies on the Government Instructoral Staff.

The Director of Agriculture addressed the Board explaining in detail his suggestions contained in the letter and how he expected it would affect the Society's operations.

It was then moved by Mr. McKay and seconded by the Chairman,

> "Resolved:—That the report of the Special Committee appointed to consider the filling of vacancies on the Instructoral Staff be adopted and that the Secretary be authorised to advertise for applicants and a Special Committee be appointed to interview the candidates to select those that are considered suitable."

The following members to be the personnel of the Committee were appointed:—The Director of Agriculture, the First Vice-President, the Hon. T. J. Cawley, Messrs. H. A. L. Simpson, O.B.E., T. P. V. McDaniel and U. Theo. McKay.

It was then decided that two meetings should be held, one when the applications should be gone through and segregated and the second meeting when the selections would be made for recommendations to the Board. The first meeting to be held on the 21st February and the second meeting on the 28th February.

The Board then decided on a resolution moved by Mr. McKay, seconded by the Chairman and carried that the standing orders be suspended to enable the Board to receive the report of the Instructors Committee affecting certain urgent matters that were considered that morning.

The Secretary read the following report:—

To the Board of Management:

Gentlemen.—Your Committee begs to recommend for your adoption the following matters which were considered at the meeting of the Instructors Committee this morning and were considered as urgent.

The following motion was moved by Mr. U. Theo. McKay and seconded by the Hon. T. J. Cawley, and unanimously carried:

"That in order to further the interests of the Agricultural Society the Instructors be placed directly under the supervision of the Secretary of the Jamaica Agricultural Society, and all reports, arrangement of work and plans by the Supervisors be submitted to the Secretary, and further—that the Secretary be responsible for the Instructoral work of the Society."

The following motion was moved by the Director of Agriculture, seconded by Mr. U. Theo. McKay, and unanimously carried:

"That this Instructors' Committee recommends to the Board of Management (a) that a small Committee of the Board of Management be appointed to plan the work of the Instructoral Staff for the ensuing year with a view to the adoption of a definite programme in relation to the agricultural needs of the Island, and the various districts of the Island.

(b) That the Secretary be ex officio a member of the Committee and (c) That the Committee be required to report to the Board of Management in May of each year.

Reports from Supervisor Carrington and Instructor Martin and oral report from the Secretary on Temporary Assistant Instructor Maxwell, were considered and the Committee recommends that his temporary appointment be not confirmed and that he be so advised.

Report from Supervisor Bacquie as to irregularities at the Comfort Hall Branch, and letter from the Secretary of the Branch, and statement by the Secretary as to an interview with the President of the Branch were considered, and it is recommended that the Board of Management appoint a Special Committee for enquiry into the matter.

The Committee recommends the postponement of the judging of the Prize Holdings Competition in Instructor Robotham's area from March to the month of April.

I am, Gentlemen,
Yours very truly,
(Sgd.) GLAISTER, BAXTER,
Secretary.

The Board decided to receive the report and to deal with it in sections.

Mr. McKay then moved, seconded by Mr. T. P. V. McDaniel, that the portion of the report referring to the Secretary being responsible for the instructoral work of the Society be adopted.

This was carried without dissent.

Rev. Mr. Thompson then moved, seconded by Mr. U. Theo. McKay, that the portion of the report recommending that a small Committee of the Board of Management be appointed to plan the work of the Instructoral Staff be adopted.

Mr. Simpson pointed out that it was irregular to have the Secretary as an *ex officio* member of the Committee.

The Board agreed to delete this portion of the paragraph.

The motion was then carried.

The Hon. Director of Agriculture then moved that the personnel of the Planning Committee be the First Vice-President, Mr. T. R. Williams, Mr. T. P. V. McDaniel and the Director of Agriculture. This was seconded by the Hon. Mr. T J. Cawley, who requested the Director of Agriculture to be Chairman.

This was agreed to, and the motion carried.

Rev. Mr. Thompson moved, seconded by Mr. McDaniel, that the portion of the report referring to the recommendation that the temporary appointment of Assistant Instructor Maxwell be not confirmed, be adopted.

This was carried.

The Board discussed the irregularities of the Comfort Hall Branch and instructed the Secretary to request the services of Messrs. H. E. Lewis and D. D. Phillips to hold an investigation in the matter, Supervisor Bacquie to be in attendance.

The Board considered the postponement of the judging in the Prize Holdings Competition in Instructor Robotham's area and approved.

The Board decided to defer the revision of the Estimates for 1934-35, until after the luncheon adjournment.

Statement of Accounts.

(a) *Statement for December.*—The Secretary stated that the Statement of Accounts for December had been circulated.

(b) *Statement for January.*—Statement of Accounts for January as shewn below was presented:—

The Brown's Town Benefit Building Society.

ESTABLISHED 1893. INCORPORATED 1899.

SHARE CAPITAL £126,430.

ASSETS £109,519. RESERVE £12,961

GOOD INVESTMENTS. LIBERAL ADVANCES.

EASY TERMS REPAYMENT.

FOR PROSPECTUS AND FULL PARTICULARS APPLY

C. OWEN COVER, BROWN'S TOWN, ST. ANN, JAMAICA.

Statement of Accounts, January, 1934.

Receipts.	Estimates. £ s. d.	Total. £ s. d.
To Subscriptions	150 0 0	145 15 4
Affiliation and Journal Fees	150 0 0	151 10 0
Advertisements in Journal	150 0 0	21 3 0
Sundries: Bank Interest, etc.	20 0 0	20 12 7
Government Grant	8,500 0 0	7,083 6 8
Appropriation from Sales Dept., Surplus	1,731 0 0	..
	£10,701 0 0	£7,422 7 7
Balance from 31st March, 1933		2,982 10 1
Prize Holdings Competitions		2 19 0
Beekeeping Industry		508 3 6
Show Deposits		5 0 0
Fees for use of Show Equipment		1 1 0
Nethersole Presentation Fund		8 18 0
Refunds of Advances		425 16 4
Donations for Local Competitions		1 1 0
Seeds Trading Account		2,796 9 4
		£14,154 5 10
Less Expenditure—(per contra)	..	12,977 6 0
Balance		£1,176 19 10
Cash in hand	10 0 0	
Cash at Barclay's Bank Current A/c	94 10 1	
Cash at Royal Bank of Canada Current A/c	172 9 9	
Cash at Royal Bank of Canada Deposit a/c	900 0 0	£1,176 19 10

Expenditure.	Estimates. £ s. d.	Total. £ s. d.
By Personal Emoluments:		
Secretary and Office Staff	1,847 0 0	1,556 16 1
Instructors and Supervisors	7,385 0 0	6,290 2 8
Instructors' Course at Hope	125 0 0	122 18 2
Instructors' Contingencies	100 0 0	109 15 6
Secretary's Office and special travelling	25 0 0	45 19 3
Printing and Stationery	100 0 0	107 11 8
Printing and issuing Journals and Reports	725 0 0	560 16 5
Rent and Rates	58 0 0	52 2 8
Rent of Telephones	15 0 0	17 2 0
Postage and Telegrams	10 0 0	9 14 8
Office Furniture: Repairs	10 0 0	3 14 9
Incidentals	50 0 0	53 18 4
Auditors' Fees	25 0 0	25 0 0
Books for Library	10 0 0	6 13 11
Experiments	205 0 0	20 10 10
Sub. to Horace Plunkett Foundation	1 0 0	1 0 0
Show Equipment repairs	10 0 0	1 7 3
	£10,701 0 0	8,985 4 2
Prize Holdings Competitions	..	139 4 9
Refund of Show Deposits	..	5 0 0
Beekeeping Industry	..	537 12 5
Advances to Instructors	..	546 0 0
Local Competitions	..	3 2 0
Furniture and Fixtures	..	9 10 0
Seeds Trading Account	..	2,751 12 8
		£12,977 6 0

GLAISTER BAXTER,
Secretary.

DONALD MACDONALD,
Accountant.

Office.

(a) Application from Miss Hilton, accompanied by Doctor's certificate for two months leave of absence was placed before the Board, and the leave was granted on full pay.

(b) The Secretary read Memorandum informing the Board of the Profit and Loss Account on the poulty feed operations from February to September, 1933, and asking for authority to instal grinding machinery at a cost of £30, amount to be charged to general expenses of the Seeds Department.

The Board approved.

Instructors.

(a) *Report of January Meeting of Committee.*—Instructors Committee's Report of its January meeting was presented as under:—

24th January, 1934.

Gentlemen:

Your Instructors Committee met on the 3rd January at 10 a.m., and as a result recommend as follows:

1. That consideration of Instructor Shirley's application for promotion in grade be deferred until the impending vacancies are being considered.

2. That leave be granted to Instructor Buckley for one month.

3. That extracts from Supervisor Bacquie's report on crops for Mid-Clarendon be forwarded to the Clarendon Branches Associated.

4. That Instructor Thompson's application for leave for the month of January be granted and Instructor Lynch's application for four weeks during the month of February be granted.

The other matters considered by the Committee were regarded as of urgency and reported to the Board at their last meeting.

The Rev. W. J. Thompson, moved, seconded by Mr. U. Theo. McKay, that the report be adopted.

This was carried.

Mr. H. A. L. Simpson moved, as arising out of the report, that in cases of urgency relating to leave of absence, any of the Vice-Presidents may act and report to the Board at the next meeting.

This was seconded by the Hon. Mr. Seymour and carried.

The Board then adjourned for luncheon.

The Board resumed at 2 p.m., when there were present:—The Hon. T. J. Cawley, First Vice-President in the Chair, Rev. W. J. Thompson and Hon. G. Seymour Seymour, O.B.E., Vice-Presidents, Hon. A. C. Barnes, Director of Agriculture (*ex officio*), Messrs. H. E. Lewis, T. P. V. McDaniel, U. Theo. McKay, H. A. L. Simpson,, O.B E., T. R. Williams and the Hon. W. H. W. Westmorland; Messrs. P. St. L. Bacquie and L. L. Carrington, Supervisors of Instructors and the Secretary, Glaister Baxter.

On the motion of the Chairman, seconded by Mr. McKay, the Board decided to go into Committee to consider the revision of the Estimates for 1934-35.

The Secretary outlined what was set out.

At the request of Mr. McKay, the Secretary read the motion originally moved by Mr. Cover, referring to Instructors' grading and increments which had been passed at a previous meeting of the Board.

After discussion of the Secretary's proposal for promotion in grade of seven Third Class Instructors to second class grade and giving them their first increment of £20, the proposal was negatived. and Mr. Simpson moved a resolution, seconded by Mr. Williams, that the seven Instructors affected, i.e., Messrs C. V. Atkinson, F. W. Kelly, W. D. Marr, W. L. Shirley, G. R. Graham, L. A. Coke and J. A. Graham, be appointed to the grade of Second Class Instructors at a salary of £300 per annum to take effect from the 1st of April, 1934.

The Committee decided to make provision for the appointment of three Agricultural Headmen at £60 each per annum.

Mr McKay then moved that the sum of £200 be set aside for the development of the Citrus Industry.

This was seconded by Mr. McDaniel.

The Chairman said that this was a financial matter and should be brought up by resolution, notice of motion of which would have to be given.

The Chairman brought to the attention of the Committee that there were two items on the Estimates yet to be dealt with:—one the provision for a duplicating machine for £40, and the other an increase to the vote for Secretary's travelling of £50.

The Committee agreed to these items.

Mr. McDaniel then said that the Chairman allowed two items to be put on the Estimates which were not there before and no notice of motion had been given.

The Chairman said the items had been on the Estimates originally.

The Secretary said the Estimates were now before the Board in Committee and his opinion was that any member could move to add any item to them.

The Chairman ruled to the contrary.

Mr. Seymour said that what the Chairman evidently had in mind was the ruling which obtained in the Legislative Council that no Elected Member could bring forward any financial measure without first obtaining the consent of the Governor.

The Director of Abriculture suggested that the matter referred to by Mr. McDaniel be referred to the small Committee appointed that day for planning the instructoral work of the Society and the question of costs of the necessary budwood would then be gone into.

The Estimates for 1934-35 were then authorised as follows:—

Heads of Expenditure.	Revised Estimates, 1934-35. £	s.	d.
PERSONAL EMOLUMENTS:			
Secretary and Office Staff .. .	2,014	5	0
Instructors and Supervisors ..	7,482	10	0
Instructors' Course at Hope	125	0	0
Instructors' Contingencies	100	0	0
Secretary's, Office and Special Travelling ..	100	0	0
Printing and Stationery	100	0	0
Printing and Issuing Journals and Reports ..	750	0	0
Rent and Rates	58	0	0
Rent of Telephones	27	0	0
Postage and Telegrams	10	0	0
Office Furniture: Repairs ..	15	0	0
ncidentals	50	0	0
Auditor's Fees	25	0	0
Books for Library	10	0	0
Experiments and Livestock Subsidies ..	100	0	0
Show Equipment: Repairs ..	10	0	0
	£10,976	15	0
Beekeeping Industry	500	0	0
Office Equipment	40	0	0
	£12,516	15	0

Estimated Revenue.	£	s.	d.
Subscriptions	£175	0	0
Affiliation and Journal Fees	175	0	0
Advertisements in Journal	200	0	0
Bank Interest, etc.	10	0	0
Miscellaneous	10	0	0
Bee Industry Sales	30	0	0
Seed Department Profits	400	0	0
Government Grant	9,500	0	0
Bee Industry Subvention . ..	500	0	0
	£11.000	0	0

Note:— Deficit to be provided from Surplus £516 15 0

The Board then resumed and on the motion of the Chairman, seconded by the Director of Agriculture, it was decided that the action of the Board in Committee on the Estimates be adopted.

Report from Committees.

Re Travelling Expenses.—The Secretary read the following report of the Special Committee appointed for considering the claims of certain Agricultural Instructors for extra travelling and the travelling of the Secretary and the Supervisors.

5th February, 1934.

To the Board of Management:—

Gentlemen:

Your Committee, consisting of Mr. U. Theo. McKay, presiding, and the Hon. T. J. Cawley, met at the Office of the Jamaica Agricultural Society on Monday, 5th February, 1934, at 10.30 a.m. to consider the claims of certain Agricultural Instructors for extra travelling consequent on storm relief and also the travelling of the Secretary and the Supervisors.

The Committee after going carefully into the correspondence, reports and accounts submitted, could find no data which would justify them in making any recommendations for payment of any of the amounts or any portion submitted.

For example: one Instructor sent in mileage of 56 with "?" after it, which the Supervisor was not in a position to explain. The month before the same Instructor sent in no mileage. In most of the cases submitted it was found that there was very little difference between the monthly average mileage and the mileage reported as done during the month of November.

Other Instructors who were not in the storm damaged area did for the same period mileage amounting to 993, 836, 741, 576 respectively. Taking these figures into consideration your Committee regrets they cannot recommend the payments of the amounts claimed.

Your Committee would also take this opportunity of recommending to the Board of Management that in future any claims for extra travelling by Instructors should be verified and certified by the Supervisor, also the necessity of Supervisors making investigation into any departure from the Itinerary of an Instructor, so as to be in a position to fully explain to the Board if so called upon.

The Committee went through the travelling of the Supervisors and found that the travelling of Mr. P. St. L. Bacquie was authorised by the Board with their promise to pay; under the circumstances steps were taken and rightly so in the opinion of the Committee to send Mr. L. L. Carrington down in the storm damage area to help and it follows that his expenses should be authorised and the amount of 4d. per mile in the opinion of the Committee was considered reasonable.

The Committee enquired into the travelling expenses of the Secretary and found that former Secretaries drew 7d. per mile and subsistence allowance. This Committee therefore does not consider the present rate unreasonable.

The Committee is of the opinion that whilst it might be impracticable in certain instances for the Secretary to obtain authority for travelling beforehand from the Board of Management, that he report such travelling as he has done to the Board at a subsequent meeting.

Yours very truly,
(Sgd.) U. Theo. McKay,
T. J. Cawley,
Glaister Baxter, Secretary.

Mr. McKay then moved, seconded by the Chairman, that the report be adopted.

This was carried.

Re Provident Scheme.—The Secretary reported progress on the Provident Scheme and he was instructed to circularise the papers among the entire Board of Management.

Communications.

(a) The Secretary placed on the table copy of a Law received from the Honourable the Colonial Secretary to secure a pension of £200 per annum for Mr. Ernest Arnett, late Supervisor of Instructors.

This was tabled.

(b) Letter No. 7434/33 of date 20th January, 1934, from the C.S.O. covering Proclamation governing the importation of fresh fruit and vegetables, was read and tabled.

(c) Letter from Messrs. Jamaica Match Indnstry, Ltd., pointing out that they were using a large amount of Prickly Yellow in addition to Bitter Damsel wood and suggesting that this wood be also placed on the protected schedule under Law 4 of 1909, relating to Praedial Larceny, was read.

The Board decided to make recommendations to the Government to this effect.

(d) Letter from Messrs. George & Branday, pointing out that the demand abroad for Bitterwood had increased to a large extent within the last year, and suggesting that propaganda for its propagation be done by the Society.

The Secretary stated that he had already taken up the matter with the Conservator of Forests with a view of having these seedlings included in their nurseries for free distribution

The Board approved.

(e) Letter from the Secretary of the Yallahs Branch of the Society asking for the Secretary to be permitted to visit the Yallahs area and advise on suitable crops and to speak on Agricultural Credit and other subjects at the Branch meeting was submitted.

The Board approved.

(f) Letter from the Frankfield Branch asking for an address to be given by the Secretary on a day in March was read.

The Board approved.

(g) Letter from the Royal Empire Society, Montreal, Canada, asking for permanent exhibits for their Exhibition was read.

The Secretary was authorised to endeavour to make a collection of free exhibits for the purpose.

Half-Yearly General Meeting—Matters referred.

The following resolutions referred from the Half-Yearly General Meeting were placed before the Board:—

(*a*) *Resolutions from St. Mary Branches Associated and St. Catherine Branches Associated re Agricultural Credit.*

(*b*) *Resolution from St. Catherine Branches Associated re Alternative Trunk Road.*

(*c*) *Resolution from Liguanea Branch re Kiln for Curing Corn.*

The Board decided that:—Resolutions (a) should be forwarded to the Chairman of the Government Committee considering the question of Agricultural Credit: (b) Resolution re Alternative Trunk Road be sent to the Colonial Secretary and (c) resolution re the

be submitted to the Committee of the Board of Management, considering the best methods of curing and storing minor crops.

Diseases of Plants and Animals: Insect Pests.

Panama Disease of Bananas—Reports for December, 1933, and for the year 1933.—The Secretary placed on the table reports on the Panama Disease of Bananas for the month of December, and the Annual Report for 1933, and stated that he had forwarded copies of these to each member of the Board.

Industries.

(a) *Beekeeping—Instructor's Report for December.*—The Secretary placed on the table, Bee Instructor's Report for December, and stated that the report was in circulation to the Bee Industry Committee.

Branches, Resolutions, etc.

(a) *Letter from C.S.O., re No. 1 Windward Parochial Road.*—Letter from the Hon. the Colonial Secretary stating his inability to deal with the No. 1 Windward Parochial Road in Hanover was read.

The Secretary was instructed to forward the information to the Branch concerned.

(b) Letter from the Secretary of the St. Elizabeth Branches Associated re destruction of fruit unfit for export by the Inspectors of Produce, was submitted.

The Secretary was instructed to forward same to the Chief Inspector of Produce.

(c) Resolution from the St. Thomas Branches Associated re the condition of the Johnson River was submitted and the Secretary was directed to forward this to the Director of Public Works.

New Members.

On the motion of the Hon. Mr. Seymour, seconded by Mr. McKay, the following were elected new members of the Society:—

E. B. Brandon, c/o Jamaica Fruit & Shipping Co., Kingston.
Arthur S. Brown, Potosi Estate, Bath.
S. E. Simmon, 10 Market Street, Montego Bay.
D. E. Roberts, Angels Pen, Spanish Town.
W. A. Williams, United Fruit Co., St. Margaret's Bay.
J. Allan Peterkin, Boulogne, St. Andrew's, Grenada, B.W.I.
W. Parry Okeden, Hermon Estate, Grenada.
F. T. Muirhead, 129a Tower Street, Kingston.
Clifford H. Meredith, Highgate.
J. S. O'Hara, Pedro.
J. Tilumal, P.O. Box 365, Kingston.
A. J. Clark, Shooters Hill.
A. G. Stanley, 385 Edgecombe Ave., New York, U.S.A.
A. M. Gold, A.M.I.C.E., Public Works, Halfway Tree.
Mrs. M. A. Henriques, 9 Caledonia Avenue, Cross Roads.

Other Business.

(a) Letter from Sir E. A. DePass as representative of this Society on a Committee of the British Empire Producers' Organization, asking for a contribution of expenditure decided on by that Committee with a view of furthering the marketing of Empire coffee, was read.

The Secretary was instructed to forward the correspondence to the Hon. the Colonial Secretary.

(b) Letter from the First Vice-President regarding the necessity of extensive propaganda to improve the methods of the harvesting of citrus, was read.

The Secretary was instructed to place this latter before the Special Committee appointed to plan the instructoral work of the Society and to request the Chief Inspector of Produce for a Memorandum for circulation to the Instructors.

(c) Letter from the St. Elizabeth Branches Associated was read advising the Board of a decision to take Direct Members for their Branch and asking that fees for such Direct Members be made 2/6d. for the Associated Branch and 1/6d. for the Journal.

The Board decided that the matter being of some importance, some consideration should be given to it and deferred such consideration to the next meeting.

(d) *Resolutions from the Smithville Branch re Police Station and Road* were considered and the Secretary was directed to deal with them.

(f) Letter from Marlie Hill Branch requesting a visit from the Secretary at their Prize Giving in connection with the Junior Vegetable Growing Competition was read.

The Board approved.

Authorised Persons.

Returns of Arrests for quarters ending 30.9.33 and 31.12.33 received from the Inspector General of Police were placed on the table and the Secretary was instructed to publish summaries of these in the Journal.

The meeting then adjourned to Wednesday the 7th March at 11.30 a.m.

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INSECT PESTS OF THE TOMATO.

By Mr. W. H. Edwards, D.I.C., Government Entomologist.

(Continued from the December, 1933 issue of the Journal of the J.A.S.)

B. *Insects that suck the sap of the plants.*—

1. *Aphids or Plant Lice.*—Soft bodied pear shaped insects, on the average about as big as pinheads and which vary in colour from light green to dark brown are frequently found congregated on the underside of leaves and on young shoots of tomato plants. Shoots attacked by these insects remain dwarfed whilst their young leaves curl and do not expand normally. Infested plants thus assume a characteristic appearance which facilitate the detection of the pest in the fields.

Aphids (commonly known as Plant Lice or Green Flies) suck the sap of plants by thrusting the sharp stylets of their mouth parts into the internal tissues of leaves or of tender shoots. When in large numbers they extract a considerable amount of sap from the plants, the damage they thus occasion being often considerably increased by the poisonous substances or virus which, whilst feeding, they inject into the tissues of their hosts.

In Jamaica most cultivated plants are attacked by Aphids. Amongst truck crops, tomatoes, cucumbers, melons and cabbage frequently suffer considerably.

In spite of their several natural enemies (lady bird beetles, parasitic wasps, etc.) serious outbreaks of plant lice frequently occur in cultivated fields, if human intervention is not then rapid those pests being fast breeders and very prolific, spread rapidly and cause considerable damage before their natural enemies have had time to reproduce themselves in sufficient numbers to bring them again under control by the laws of biological balance which govern nature.

Measures of Control.—

As the pest when conditions are favourable to its multiplication, may spread rapidly over whole fields and cause serious losses within a short time, it is advisable when visiting the fields to pay special attention to the symptoms, which, as mentioned above, infested plants as a rule show plainly and as soon as the presence of the pest is observed to apply measures of control without delay.

If infested plants are at a stage when they can be pruned without prejudice to the crop, all infested young growth should be clipped and thrown directly in a tin containing water and kerosene or any of the insecticides mentioned hereunder.

Spraying against Aphids—

Whether the plants found infested can thus be conveniently rid of most of their parasites or whether this cannot be done all the plants found, or suspected to be infested should be sprayed with one of the solutions mentioned hereunder.

Aphids are soft bodied insects which are very vulnerable to insecticides. The right type of insecticide should, however, be used; errors are frequently made in Jamaica with regards to the methods of application and choice of spraying materials. It is too frequently believed that what has given the best results in controlling one pest will also prove the best against another insect.

As Aphids feed on the sap of plants and do not absorb tissues on which poisons can be applied in advance '*stomach poisons*' such as Arsenate of Lead, Paris Green, etc., which generally and advantageously

are employed against leaf eating insects such as caterpillars, etc. *cannot be used* for the control of those plant lice.

Against such insects which suck the sap from the internal tissues of the plant substances known as '*contact insecticides*' should be used, those substances kill by suffocating, or by scorching the tissues of, the insects with which they are put in contact.

In the case of insecticides of that description the remedy cannot be applied preventatively on the plants before they become infested as it is only those insects which are actually hit by the spray of a contact insecticide that can be killed. It is therefore essential to spray all the leaves of the plants where the pest may be present in such a way that the body of each individual insect would be wet by the insecticidal liquid. To accomplish this it is necessary to have the sprayer fitted with nozzles which can be adjusted so that the jets of insecticides can be directed in an upward direction from underneath the leaves As aforesaid, as Aphids congregate mainly on the underside of young leaves and on tender shoots, special attention should be given when those parts cannot be pruned as mentioned above to drench them liberally with the insecticide.

Nicotine sulphate and Tobacco decoctions.—

The contact insecticide which is generally used against Aphids is Nicotine Sulphate. It costs little at the very great dilution at which it is employed and is very effective against such delicate insects. That insecticide also possesses the advantage of being perfectly inocuous to the tender foliage which generally have to be treated.

Nicotine is usually sold in the form of concentrated solutions the most common forms on the local market being 40% solution of Nicotine Sulphate. The better known brands of that insecticide bear the name of Nicotine Sulphate 40, Black Leaf 40, etc.

Home made Tobacco Decoctions.—

As in Jamaica many planters possess an abundant source of Nicotine in the waste tobacco leaves or spent stems which are usually left to rot over reaped tobacco fields, in curing barn, etc., and as the disposal of such material is very desirable to prevent tobacco pests from breeding in the debris all such refuse should be used for preparing tobacco decoctions which may be conveniently used not only to control plant lice in the gardens but also to disinfect floors liable to become infested with fleas, to control fowl lice in the chicken coops, etc., etc.

Preparation.—

Fill a barrel with waste tobacco leaves or spent stems and pour over the material enough hot (not boiling) water to cover it. After the leaves will have steeped over night the decoction which will be about the colour of strong tea, should be strained.

For use one quart of that decoction in two gallons of water. To increase the wetting and adhering power of that liquid it is advisable to add one cubic inch of laundry soap to each gallon of the spray.

Spraying.—

As plant lice should be destroyed as soon as their presence is observed truck crop growers are strongly advised to keep in stock tobacco debris to prepare the decoction and a small amount of concentrated nicotine sulphate solution which would be available for immediate use.

Spraying should be repeated at four or five days interval until the pest has been completely destroyed.

The following preparation being commonly employed for many purposes all over the country may be readily obtained or prepared when nicotine concentrates are not easily obtainable. As however

in the case of paraffin emulsions especially those insecticides unless they are very thoroughly mixed may cause burning of the foliage and as on the whole they are not as cheap as nicotine they are only mentioned as occasional substitute for nicotine sprays.

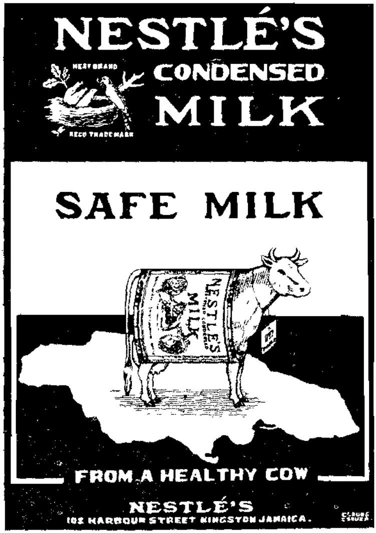
Paranaph.—

Weak solution of Paranaph (an insecticide largely used locally in the preparation of cattle dips) can be used to combat Aphids. For that purpose 1 lb. of paranaph should be dissolved in 4 gallons (i.e., 1 kerosene tin) of water, and the solution sprayed under pressure on the insects usually found in clusters on the under side of the leaves and on the young shoots.

Paraffin Emulsion.—

When a supply of the above insecticide is not available a Paraffin emulsion (see mode of preparation in Journal of the Jamaica Agricultural Society issue of April, 1933) diluted 1 part of the stock emulsion n 500 parts of water can also be used to combat Aphids.

(*To be continued.*)



THE USE OF ARTIFICIAL MANURES IN THE GARDENS OF THE LIGUANEA PLAIN

By Mr. H. H. Croucher, Agricultural Chemist.

Many people are aware that artificial manures are widely and profitably used in the production of plantation crops, but few appreciate that the same artificial manures can produce a great improvement in the appearance of a garden. By the judicious expenditure of a few shillings a bed of annuals can be transformed from an uncertain success to a luxuriant certainty. The use of these aids to gardening has been limited hitherto partly by the difficulty of purchasing quantities small enough to be within the means and requirements of the average householder, and partly by the uncertain knowledge as to their use. The former limitatiou has now been practically removed as most of the essential artificial manures can be purchased by the pound at a number of stores and from the offices of the Agricultural Society, and it is intended to assist in removing the latter limitation by indicating in this article the best methods of obtaining good results by the use of these manures.

Plants require the presence in the soil of some twenty-odd elementary substances to enable them to flourish. Of these food or nutrient substances all except four are present in excess in the majority of soils. The four exceptional substances are lime, ammonia, phosphate and potash. The soil of the Liguanea Plain contains ample lime for ordinary needs, very little ammonia, a fairly large amount of phosphate and a medium amount of potash. Plants are continuously depleting the stocks of these substances contained in the soil, and unless these stocks are replenished at intervals, the plants growing in the soil may be restricted in growth through lack of nutrients. In order to give the plant an opportunity to grow fully, these substances must be present in the soil not only in excess but in the correct proportion. Moreover, different types of plants require these substances in different proportions, and although the proportions required by any one type of plant can vary between fairly wide limits, an excess of any one of the substances may produce undesired results. The total amount of the substances which any one plant can absorb depends mainly on the nature of the plant, and on the amount of water it receives.

The three elementary substances can be supplied to the soil by the use of the following artificial manures:—Sulphate of Ammonia, which contains ammonia, Superphosphate, which contains phosphate, and Sulphate of Potash, which contains potash. The ammonia and phosphate cau be supplied together in manures placed on the market under the names of Nicifos and Ammophos. As the addition of ammonia is always required on the Liguanea Plain soils, it is generally convenient to apply the phosphate in one of these two forms, particularly as they are more easily obtainable locally than Superphosphate. Bat Guano may be used instead of Niciphos or Ammophos, but twice the amount must be used. Its action is slower than the true artificial manures which is sometimes an advantage. The guano contains a certain amount of organic matter.

The average cost of these manurial substances when purchased in small amounts is about 1½d. per lb.

The soil of the Liguanea Plain is very variable, and although the given mixtures are fairly widely applicable, they may not be ideal for all crops on all soils. Any undesirable growth may often be rectified by

the application of the following broad principles. Ammonia tends to produce vegetative or leaf growth rather than fruit or flower growth. A deficiency of ammonia is shown by yellow leaves and general unhealthy appearance. An excess of ammonia will be demonstrated by luxuriant leaf growth at the expense of fruit or flower. Ammonia may be supplied successfully at any time during the plant's life, and the plant thoroughly recuperated. An excess of ammonia cannot be remedied by application of large amounts of phosphate and potash, except in the early stages of growth. When it appears from the growth of the plant that an excess of ammonia has been applied, the proportions of the mixture should be re-adjusted for the following crop or season. It is not easy to distinguish between the effects of an excess of potash and of phosphate. Generally on the Liguanea Plain however, the potash will be deficient.

The mixtures given below may not be applicable to all garden soils in other parts of the Island, but it should be possible for enthusiastic gardeners to work out on the basis suggested in this article the composition of mixtures best suited to their particular conditions.

Flowering Annuals.—

The best mixture to apply to annuals is one consisting of the following:—

1 lb. Sulphate of Ammonia
1 lb. Ammophos or Nicifos
1 lb. Sulphate of Potash.

The three substances, which are white crystalline powders, should be thoroughly mixed in the above proportion, any lumps being crushed. The mixture should be applied to the bed a few days before the seedlings or seeds are planted out. It should be carefully and evenly sprinkled on the prepared bed and lightly forked or raked into the top few inches of soil. From ½ to ¾ lb. of the mixture should be applied to each square yard of bed, but larger applications can be made if it is so desired. A cigarette tin full of the mixture weighs about half a pound. The bed should be given a light watering, and should be thoroughly watered before or directly after the seedlings are planted out. It is possible to apply the manure after the seedlings have taken root, but too heavy an application may "burn" and kill the plants. Any manure allowed to fall on the leaves of growing plants will certainly kill the leaves and possibly the plant.

The manures may be used to improve full grown plants which appear sickly. The manure should be forked in lightly with a hand fork round the roots of each plant, and the bed well watered immediately. It is advisable to apply the manures in the evening rather than in the morning.

The amount of manure which can be safely applied to a growing plant depends upon the stage of growth of the plant and on the nature of the plant. It is obviously impossible to deal with each type of plant, but normally well-established plants will withstand at least the minimum quantity suggested, namely, ½ lb. per square yard. As an added precaution, however, it is advisable to apply the correct amount of manure to one or two plants first. If the plants are surviving after two days, the manure can be safely applied to the remainder.

Flowering Shrubs.—

Flowering shrubs in Jamaica do not normally require the assistance of artificial manures, but when exceptionally good growth is desired, or when it is required to improve sickly plants, artificial manures may be used with good effect. A mixture of the same proportion as that given for flowering annuals may be used. Larger dressings are of course required. From 1 lb. to 3 lbs. according to the size of the shrub

may be applied. The manure should be spread evenly over the arae of a circle of from 3 to 4 feet in radius round the shrub, and should be lightly forked in, and water applied. There is no risk of killing the shrub by the application of these amounts, though the leaves will be burnt if the manure is allowed to fall on them.

Better results are sometimes obtained by dividing the application into two halves, and applying one portion about a month after the shrubs have ceased flowering, and the remaining portion about a month before they begin to bud.

Green hedges of the arelia or murraya type may be forced to produce luxuriant growth, and their speed of growth increased by the application of artificial manure.

A mixture in the proportion of

4 lbs. Sulphate of Ammonia
1 lb. Ammophos or Niciphos
1 lb. Sulphate of Potash

should produce excellent results. The mixture is applied at the rate of from 1 to 2 lbs. per yard of hedge, according to its size. It should be spread in a band two feet wide (1 ft. on either side) along the hedge, lightly forked in and watered.

Vegetables.—

Artificial manures may be applied to vegetables in much the same way as to flowering annuals. The best mixtures for the various types of vegetables differ somewhat. A list of suggested mixtures is given, but they may have to be adjusted in accordance with the principles already given. The amount of the application will vary with the paying capacity of the particular crop.

Tomatoes, Egg Plants and other fruiting Vegetables,

1 lb. Niciphos or Ammophos or 2 lbs. Bat Guano.
1 lb. Sulphate of Potash.

Application about $\frac{1}{4}$ lb. per plant, half of which may be applied before planting, and the remainder when the plant is well established.

Green Vegetables, e.g., Cabbages, Lettuce, etc.

2 lbs. Sulphate of Ammonia
1 lb. Niciphos or Ammophos
1 lb. Sulphate of Potash.

Application of about 2 ozs. per root for cabbages, and 1 oz. for lettuce.

Beans.—

Similar mixture to that for cabbage at the rate of $\frac{1}{4}$ lb. per square yard.

Root Crops.

1 lb. Niciphos or Ammophos
1 lb. Sulphate of Potash.

Application of $\frac{1}{2}$ lb. per square yard before sowing.

Lawns.—

The manuring of grass both for feeding and for ornamental lawns has received considerable study in temperate countries. Certain artificial manures have been prepared which have produced remarkable effects on English lawns. Whether they are applicable to tropical grasses and lawns is unknown. The following procedure using the simple manures already described has produced good results on lawns on the Liguanea Plain. It is assumed that the basic grass of the lawns is Bahama grass, though there is no obvious reason why it should not produce good results on lawns composed of coarser grasses.

The manurial mixture that is recommended is

10 lbs. Sulphate of Ammonia

1 lb. Niciphos or Ammophos
1 lb. Sulphate of Potash.

The manure must be thoroughly mixed before application.

For a lawn the size of a tennis court, an application of at least 20 lbs. of the mixture is required annually. Lawns which are badly out of condition and are weedy or are on stony soil may require initially a more frequent application.

The manure, if it is as a dry powder, should be spread as evenly as possible over the lawn. A more even application may be obtained if the manure is well mixed with a quantity of dry, sifted soil. If the manure is damp and difficult to spread evenly, it may be dissolved in water and watered on from a can, but it is rather a tedious operation.

It is extremely difficult to apply the manure evenly over a whole lawn, and therefore it is sometimes advisable to retain a few pounds of the manure for the application afterwards to any patches that may have been missed in the original application. The areas which have not received manure will be quite obvious in the course of a week or two by their contrasting yellow colour.

The application is best made in the evening. The lawn should be well watered by a hose directly after the application. Any particles of manure left on the blades of the grass and not washed into the soil will burn the grass the following day. The lawn should be well watered, though not necessarily soaked, at intervals until the effect of the manure is apparent.

The best time of the year for the application is during the wet months of October and November, and a further application can be made in May.

The manure may initially give any nut grass present in the lawn a high impetus in growth. If the lawn is mowed with the mower knife set high enough to cut the nut grass and leave the lower grasses practically undisturbed, the thickness of the growth of the lower grasses will, with the assistance of frequent rolling, appreciably restrict the growth of the nut grass.

A further value of the use of a manurial mixture suggested above, is that it produces conditions in the soil unfavourable to the growth of the small round-leafed weeds, of which the most troublesome is Euphorbia prostrata, known locally as duck weed or water weed. While it cannot be claimed that complete eradication from a lawn thickly infested can be obtained by the application of manures alone, yet by judicious weeding and the regular application of artificial manure, the growth of the weed can be minimised.

It is possible to destroy the weed in lawn or patches of lawn newly infected by the generous use of artificial manure. To do this it is necessary to spread the manure at the rate of about ¼ lb. to the square yard over the weedy patch, in the morning of a sunny day. The manure must be dry and powdery. If the patch is left unwatered for a few days the whole area will be burnt brown. The weed will be killed but any Bahama grass will survive and sprout again. This procedure may not totally eradicate the weed from the area, but it would reduce it sufficiently to enable weeding to be possible, or a second treatment finally to eradicate it.

The only fault which may arise from the use of artificial manures on tennis lawns is that the grass may become thick and matted. The application of a light dressing of sifted soil during the wet months will remedy this defect and at the same time generally improve the playing surface of the lawn.

Organic Matter.—

In the above recommendations no mention has been made of the supply of organic matter in the soil. The content of organic matter in the majority of soils in the Liguanea Plain is very low and the soils have a peculiar property of consuming rapidly any organic matter supplied to them. The good bearing soils in particular require a regular supply of organic matter to keep them in good tilth. Without this supply the surface soil tends to become hard and crusted and will seriously affect the growth of plants unless very frequent surface cultivation is given.

Organic matter can be supplied to the garden soil in three ways. Firstly, it may be applied by using ordinary cow or horse dung in addition to the artificial manures. When dung is used, the amount of the application of artificials may be reduced somewhat. Secondly, a compost heap may be formed of wasted vegetable matter, grass cuttings, bush cuttings, leaves which are piled in a heap on a shallow hole in the ground and allowed to rot for a few months. The rotting may be assisted by sprinkling a little artificial manure on the heap occasionally. The rotten material may be applied to the bed when the artificial manure is applied. Thirdly, if the bed can be prepared several weeks before it is required for planting out, any green vegetable material may be dug into the soil then and at the same time half the dressing of artificial manure applied. The bed is left in clods and the remaining half of the artificial manure is applied at the normal time, when the bed is finally prepared for planting.

In conclusion it must be emphasised that the best results from artificial manures can only be obtained under the variable conditions which exist in the Liguanea Plain by careful observation and the application of the broad principles, already outlined, by each individual gardener. It is believed, however, that provided adequate water is available, the careful use of artificial manures can make the gardens of the Liguanea Plain some of the most attractive in the world.

13th March, 1934. H. H. CROUCHER.

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EDITORIAL COMMENT.

Our "Editorial Comment" in the October issue of the Journal emphasises the importance of development of the Colony being carried on on well balanced lines and pointed out the dangers of an unbalanced development.

The decline in our revenues beneath the sum which is required to carry on our routine Government expenditure, as has been disclosed by the budget submitted to the Legislative Council, serves as an example of what may very readily happen if endeavours for increased agricultural production do not keep pace with the provision of communal conveniences which add to our annual recurrent expenditure.

During the past few years of depression the leading countries of the world have found it necessary to abandon or recast their theories of political economy, adopting various measures calculated to stimulate agriculture, manufacture, and other forms of industry so as to maintain the earning capacity of its people, which is the source from which revenues are derived. The measures vary according to whether these countries are primarily agricultural or industrial, but the objects aimed at are in the ultimate the same.

The question of money credits is intimately interwoven with these measures for stimulating industry and agriculture. In many instances the schemes adopted have been entirely new departures from what is considered even now orthodox measures, but the urgency of the need forced action of some kind and that immediately. Excellent examples of what is referred to is provided by two of the most advanced countries in the world—our own mother country, Great Britain, and our big neighbour, the United States of America.

Fortunately for us in Jamaica, the dire want of the population does not hang so heavily on the spending capacity of the people. Our small farmer classes produce a very large percentage of what they live on, but nevertheless our spending power profoundly affects available revenues and in turn must affect the ability of Government for providing communal improvements.

We should like our public to keep in mind that agricultural expansion is the prime need of the country and no class of our public whether financier, merchant or planter, can afford to stay out with the feeling that agricultural expansion is not his special care.

The cost of a new road or a new school building or hospital improvements or increased expenditure on health services, means additional annual recurrent expenditure, which can only be balanced by more crops and more income. It seems to us wiser because it is perfectly practicable and possible that measures for encouraging the production of more crops and so more income, should precede everything else. By this we would create revenue surpluses and with revenue surpluses it is never hard to provide for communal improvements.

One important factor towards expansion of crops is proper credit facilities. This point we have stressed only too frequently in the pages of our Journal, but as its importance cannot be over-estimated, we feel that it should be kept in the forefront of the public's mind so that whatever organisation is necessary to connect the capital available in the country to agricultural production,—such organisation should be considered most important in our statemanship for the true advancement of the country at the present moment.

Unless action in this direction is taken with the shrinking revenue and increasing improvements, an increase in the rate of taxation will

become inevitable and then all classes, capitalists, merchants and farmers, will suffer and pay. The capitalist should therefore realise that his capital will earn less and he will pay more in taxes; the merchant that his turnover and profits will be less and that he also will be called upon to pay more taxes; and the farmer that his income will shrink and shrunken income will reflect in decreased land values and this concurrently with increased taxation.

What class can therefore afford not to co-operate with the other towards the solution necessary for the increase of the agricultural production of the Colony?

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THE CULTURE OF THE BANANA IN JAMAICA.

(Continued from the January issue.)

PRUNING:—PART II.

Pruning for the first ratoon crop—

Our first article on pruning carried us to February of the plant crop year where we stated that the ideal root should have the cropping tree fully grown with fruit hanging in various stages of maturity and on the root would be a cut-back sucker saved in July-August of the year before (the hurricane sucker) and two other small peepers of possibly a foot or two in height well placed on the root. Such a field would have its crop entirely cut off by June and during the period February to June the pruning operation would simply be the prevention of further growths of cut suckers and new suckers on the root.

As soon as the crop is 80 per cent cut off, the opportunity for deep inter-tillage presents itself. At this stage heavy tillage and root cutting do no damage as most of the roots that are cut would be those of the reaped mother plant, the cropping suckers for the succeeding year not having extended their root growths very far and even if they had, the period of embryonic fruiting being far away they have every opportunity for the replacements of their root system before the fruiting stage is reached. Besides this, this deep tillage being given prior to the renewed Fall seasons growth of July to September or at latest during the period, seasonal growth conditions plus the soils being brought into good tilth by the tillage operations together provide favourable growing conditions for the plant. The important pruning operation of selecting the sucker for the succeeding crop is wiser postponed until after the deep tillage as invariably there is a small percentage of injured suckers consequent on the tillage operation. Immediately after tillage however,—and if in irrigated country tillage should in a few days be followed up by irrigation—the final selection of the sucker to produce the crop for the succeeding year should be undertaken.

Now to intelligently select a good sucker for crop production one should be familiar with what a good sucker looks like and for this reason we give a brief description of what our experience is in this direction. A good ratoon sucker should possess more or less a conical appearance, having a big ample rhizome tapering to a small circumference just below the tuft of leaves. The leaves would be narrow and spearlike. The conical appearance is gradually lost and the leaves widen as the sucker becomes more advanced. The name usually given to the sucker whilst its conical form remains and its leaves are narrow is the "sword" sucker, and after it becomes more advanced, a "crop" sucker. The operation of selecting in the case where only one plant to the root is cropped is usually termed "singling" and when more than one is cropped, the term "selecting" is generally used. Both however are in fact selections. It has been very conclusively demonstrated that cropping one plant to the root produces the heaviest fruit and highest count bunch ratio, but on first class lands it is possible to produce quite first class fruit possibly somewhat lighter fruit and of a lower count bunch ratio, but the greater number of stems per acre offsets this and produces a greater number of count bunches per acre. The decision to crop one or two suckers per root properly belongs to the pre-planting period and can only be intelligently arrived at by an intimate knowledge of the

capacity of the soils being cropped. It is however, possible that a single sucker to the root might be produced in the plant crop and it then becomes advisable and more profitable to produce from two suckers to the root in the first ratoon crop and sometimes subsequent ratoon crops. In selecting where two to the root is intended the importance of the placing of these suckers should be realised. It has been noticed that two suckers growing close together with their roots nearly touching, produce smaller fruit and are generally unthrifty, being much poorer plants than trees placed more widely apart. For this reason it is advisable to always save suckers when this is being done earlier in the year on opposite sides of the mature plant which will give the maximum distances possible between the crop suckers. This harmful effect of suckers close together in one root is usually referred to by Jamaica planters as 'intermat' competition, the term 'mat' being used generally in Central America to denote plants in one root. The cut hurricane sucker which has been referred to before is usually removed before the period of final selection, to be used for plants and if they are not needed for this purpose earlier, they should in any case be removed at this period of final selection so as to give the crop suckers every advantage of growth without competition. Competition at this stage of the crop suckers life will adversely affect the size of fruit. In pruning the root the old mature trunk should be cut back but no further than where it remains alive. The gradual death of the old trunk should not be hastened by cutting off any of its green portions. There has been some difference of opinion on this subject and we now state here our theory which we think point to the advisability of prolonging the life of the stump of the reaped mature plant. Undoubtedly the peeper in its earlier stages derives its entire nutriment from the mother plant. Later, its own root system commences to form becoming more complete as the sucker advances to maturity. From observation it would seem that for quite a long period of its life it derives sustenance from both root systems, that is, that of the mother plant and its own. The transfer of the entire dependence from the former to the latter does take place very gradually; as an examination of the root system of the mother plant will disclose that it is still very much alive as long as three to five months after the fruit has been reaped, and the connection between both plants still exists. To understand how it is that the functions of plant life persist in the old plant for such a long period, it is necessary to realise that the trunk as it is called of the banana is not really a trunk but is in truth a part of the leaf system (the true trunk is the rhizome), and so the plant to a certain extent is complete for a long time after the reaping of the fruit. If the fact that the mother plant still functions after its fruit is harvested is accepted, (having no growing point of its own) it has to be admitted that the much wider range of its root system would be of considerable value and should not be lightly dispensed with. The writer well recalls when an overseer on a large farm on irrigated country in Jamaica that his superior officer insisted that the entire old mother plant should be dug out, giving the following reasons:—

(i) That by doing this the crop sucker would be given the entire area around its roots for the formation of a good root system.

(2) From the field sanitation standpoint that by destroying all old banana debris borer populations would be lessened and controlled.

The operation is usually referred to in Jamaica as "half mooning."

The result of these orders being carried out was a crop much poorer than the previous performance of the field in similar ratoonings.

The following are the chief features to kept in mind in this very important operation of final selection of suckers for the crop:—

(1) The soundness of the sucker.
(2) The time it is desired to reap the crop.
(3) The maximum sized stem.
(4) The best quality fruit.
(5) The rapidity of the land.
(6) The hurricane risks.
(7) To a lesser extent—the prevailing weather.

All these factors contribute to a well timed crop of high quality marketable fruit carrying a minimum of hurricane risks. Dealing with these features set out above the soundness of the sucker, like seed, constitutes the ground work of the crop. It is really only by field experience that the many fine differences between two or three average suckers on one mature plant may be correctly appreciated. It is sometimes a matter for astonishment how an old pruner, nearly always illiterate, makes a rapid and correct choice in thousands of roots one after another in which there may appear very many different pruning problems. Much may be learnt from him in the course of one's ordinary routine duties by careful watching and some cross-examination. We strongly advise young planters especially, to be specially observant in this matter, as pruning is one of the many banana cultural arts that can be very imperfectly imparted. We, however, will endeavour to stress further those points of the sucker that can be stressed in writing to help the inexperienced to identify the sound and the unsound. A good healthy sword sucker has quite a large rhizome set level in the ground or nearly so, with only the growing sheaths exposed. There should be none of the heady portion of the rhizome within two or three inches of the surface. It should taper sharply up to the tuft ending in narrow leaves in some instances hardly wider than the midrib of the leaf. There shonld be two or three inches of space at the ground surface between the mature plant and the sword sucker. Nearer than this or much further away than this indicates an inferior sucker. The younger leaves should show increased length and breadth, otherwise injury may be suspected. It should be on the outside (or land side) in the case of double suckers being grown from one mother plant,—no inner sucker is likely to be good. The sucker should possess no peculiarities, deformities, injuries or disease. Whenever a sucker is permitted to grow on top of the rhizorm for a long enough period, it invariably gets broken off by breezes and ic borer infested areas is very subject to attack by borer. Then unsound sucker usually may be recognised by its large leaf area, cylindrical trunk, bad position, growing on top of its rhizome, inappreciable differences in size of all its leaves, injuries, deformities and general thriftless appearance and sometimes having been repeatedly cut in former prunings. The recognition of all these qualities should be practised in the field and in a few months many specimens of each type will be noticed which will sufficiently familiarise the young farmer with the appearance of sound suckers and unsound suckers. It is only the practised eye that can carry through the important pruning operation of final selection of the crop with efficiency.

We have already written quite fully on the aspect of the proper timing of the crop so it should be unnecessary in this chapter to repeat what has been written. We will, however, repeat that hurricane immunity is only to be realised by having your crop suckers sufficiently small in August to September to be highly resistant to storms, yet with

the general conditions so much in favour of the rapidity of growth that the crop will have matured prior to the hurricane season of the succeeding year. Local experience of one's farm is of incalculable value. The fertility and rapidity of soils on quite limited areas differ widely and a proper assessing of these qualities as they relate to the area being pruned will be an excellent guide to the ideal size of each of the suckers to be selected to produce the crop at any given period. Field production records kept over a period of years are of great value in this direction and I commend this practice to anybody responsible for farming sizeable areas, as memory in matters of this kind often proves a very deceptive and unreliable index.

The period required for a plant crop from planting to maturity is an excellent index to the capacity for rapid production of any given field and this information is possibly the readiest at hand where field production records are not kept. Average lands may be counted on to mature the crops in fourteen months from planting, and lands may be termed rapid, slow, or average, according to their performance, in relation to this period. It should also be remembered that among the characteristics of lands the quality of producing varying sizes of trees may be taken into account as it is only by bearing this in mind that a correct estimate of the age of the sucker may be made, and it is only by being able to do this that the proper size to be selected can be arrived at. Sometimes our choice of size of suckers is narrowed, none of the ideal sizes beiug present in the root. In such a case it should be borne in mind that it is of greater importance to ensure the fruit being reaped in time and escaping the hurricane months of the succeeding year than it is to make sure that the crop sucker is safe during the hurricane months of the present year. For one thing, however big the crop sucker may be during the hurricane season of the current year it would still be more resistant to winds not having any fruit hanging, than a late crop plant with fruit hanging in the hurricane season of the succeeding year. It should be clearly understood that no hard and fast rule or accurate mathematical measurements can be given as a guide to the proper sucker size as this will vary on account of the varying factors several of which have already been referred to. Not only will the ideal size of sucker vary with each root problem but it will also vary with each soil condition. With regard to soil condition, we have already discussed this from the standpoint of rapidity of production and resulting tree sizes. We will now discuss the root problem. With roots from which the fruit have been cut the start that each following sucker would have would be about equal, but where the fruit has not been reaped from the mother plant prior to selection it becomes necessary to select a sucker which is more advanced than the rest the further away from harvesting time the mother plant is. It will be readily seen that the mature plant with fruit on it is a serious competitor to the rapid growth of sucker beside it and so allowance must be made for suckers to be held back for periods equivalent to the period for which the fruit will be hanging on the tree. There is little difference in principle in selecting the ratoon suckers for the older ratooning crops except this fact that for each progressive ratoonage up to possibly the fourth or fifth there seems to be a longer period necessary between peeper and harvesting of fruit. For instance, we estimate that on good lands the plant crop from planting to harvesting should be around thirteen months average. For first ratoon crop fifteen to sixteen months, for the second ratoon crop sixteen to eighteen months, and on some of the older ratoonages up to twenty-one months is required on the lower altitudes from peeper

to harvesting of fruit and it has been known in the higher colder altitudes that the ratoon tree will take two years to deliver its fruit.

So far we have only dealt with pruning conditions which were close to the ideal, but these conditions are rarely general throughout a farm or even a field. There seem always to be roots in a field and fields on a farm which to a greater or lesser degree fall short of the proper timing of the crop. The reasons are many, some avoidable and others not. Some of the more common causes are late planting, bad pruning, blown downs, drought or other adverse weather conditions, inefficient plantings or bad suckers necessitating supplies also unduly late supplying. It is here that one finds the never ending problems of pruning. In the case of late plantings or excessive supplies nothing but keeping the root entirely free from suckers and possibly a resort to nitrogenous fertilizers can be done for the crop; but pruning can to a great extent prevent the ratoon crop recurring as late, and it is quite possible on average lands for the second ratoon crop to be produced on time even though the preceding crops were late. When plantings are late or individual roots are late it must be estimated just how late they are as this factor must weigh largely on the subsequent decisions for pruning. In referring to late crops we shall take an April-June crop to be normal. Should your plants be one or two months late it will be possible to force the advancement of that crop and at the same time force the first ratoon sucker. This object may be achieved by reducing the number of suckers saved before it is time for selection and further by singling two or three months earlier instead of waiting until the crop is reaped. Suitable tillage as an aid to forcing rapidity of growth and on irrigated farms care to see that backward fields are not allowed to further suffer from want of irrigation as also judicious use of nitrogenous fertilizers, all will contribute to the more rapid production of the crop. In crops that are very late, where the crop cannot be expected earlier than September and is likely to last into November and December, where the planting distances allow, it might be wise to grow two suckers on the root, to prevent thereby a recurrence of the succeeding crop in the fall of the next year, that crop then holding fruit until the spring of the succeeding year. The earliness or lateness of the plant crop should be taken account of from its very earliest stages as the methods now being advised require quite early decisions and nearly as early applications. If the timing of the crop in these late fields are successfully adjusted normal pruning may then be resumed. In taking into account late crops the fact that fruit shooting in November and December will possibly require four months to maturity as against fruit shooting in March-April requiring ten weeks only, is an important factor that should not be lost sight of. Another factor also affecting the maturity of the fruit (and it must be remembered that the maturing of the fruit bears very much on pruning as it relieves the root of important competition) is that in winter time not only does the fruit take longer to mature, but the Shipping Companies require them on account of the cold weather up North to be practically round full, instead of ordinarily full as is the requirement in summer time when the weather abroad is much warmer.

So far we have only discussed the lateness of the crop caused by late or bad planting but we have another set of problems caused by bad pruning where we find the proper sucker from the root has been cut by some inexperienced or careless person, and we then have to choose between a timely cut sucker and a late uncut sucker. Here we have two evils from which to choose. The cut sucker, if not cut too often, not more than twice, still remains a vigorous sucker and the fact of its

being cut does not postpone the maturity of the fruit. What it does, is that it lessens the size of the fruit and reduces the count bunch ratio.

If we decide to retain the cut sucker we shall have to accept a loss of five to ten per cent of our grades. If we retain the late sucker we have late fruit, increased hurricane risks, possibly lower prices, and a latening of the crops of the succeeding ratoonages. We are of opinion that it is always best to accept the timely sucker rather than the late sucker, taking the small loss of a reduction in grade rather than the increased hurricane risks and the adverse effect on future crops of the ratoonages.

It is the ideal condition to have one's farm in uniform time and in proportion to have one's fields likewise. The farmer has many adverse conditions which seem to be pitted against him and it is possible that the ideal in farming may be further away than in any other vocation we can think of. These problems of pruning adjustments for crops will be encountered in every field. In the best field a root here and there, in others hundreds, and in others the entire field may require the corrective methods here advised, and so intelligence and care required to prune correctly should be by no means under-estimated. It is not safe to think that any particular field is in good time, and so any labourer would be good enough for the job, or there is nothing that he can go wrong on. Many badly timed roots will be in the best of fields and each individual root should have the necessary adjustment. We advise that the important operation of selecting should never be done by task work, but should be entrusted to only the few well trained and reliable pruners always working on the same area if possible so as to be able to check up results against their individual selections.

In conclusion of this article on pruning we should like to impress that it is one of the most important operations towards the general welfare of the crop, its quality and profit.

To be continued.

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PRESIDENT ROOSEVELT'S MESSAGE ON SUGAR.

Washington, February 8.—The text of President Roosevelt's message on sugar was sent to Congress today, as is given herewith in full:

To the Congress:

Steadily increasing sugar production in the Continental United States and in insular regions has created a price and marketing situation prejudicial to virtually every one interested. Farmers in many areas are threatened with low prices for their beets and cane, and Cuban purchases of our goods have dwindled steadily as her shipments of sugar to this country have declined.

There is a school of thought which believes that sugar ought to be on the free list. This belief is based on the high cost of sugar to the American consuming public.

The annual gross value of the sugar crop to American beet and cane growers is approximately $60,000,000. Those who believe in the free importation of sugar say that the two cents a pound tariff is levied mostly to protect this $60,000,000 crop and that it costs our consuming public every year more than $200,000,000 to afford this protection.

Quota System Proposed.

I do not at this time recommend placing sugar on the free list. I feel that we ought first to try out a system of quotas with the threefold object of keeping the price of sugar to consumers, of providing for the retention of beet and cane farming within our continental limits, and also to provide against further expansion of this necessarily expensive industry.

Consumers have not benefitted from the disorganized state of sugar production here and in the insular regions. Both the import tariff and cost of distribution, which together account for the major portion of the consumers' price for sugar, having remained relatively constant during the last three years.

This situation clearly calls for remedial action. I believe that we can increase the returns to our own farmers, contribute to the economic rehabilitation of Cuba, provide adequate quotas for the Philippines, Hawaii, Puerto Rico and the Virgin Islands, and at the same time prevent higher prices to our own consumers.

The problem is difficult but can be solved if it is met squarely and if small temporary gains are sacrificed to ultimate general advantage.

The objective may be attained most readily through amendment of existing legislation. The agricultural adjustment act should be amended to make sugar beets and sugar cane basic agricultural commodities. It then will be possible to collect a processing tax on sugar, the proceeds of which will be used to compensate farmers for holding their production to the quota level. A tax of less than one-half cent a pound would provide sufficient funds.

Tariff Adjustment Suggested.

Consumers need not and should not bear this tax. It is already within the executive power to reduce the sugar tariff by an amount equal to the tax. In order to make certain that American consumers shall not bear an increased price due to this tax, Congress should provide that the rate of the processing tax shall in no event exceed the amount by which the tariff on sugar is reduced below the present rate of import duty.

By further amendment to the agricultural act, the Secretary of Agriculture should be given authority to license refiners, importers and handlers to buy and sell sugar from the various producing areas only in the proportion which recent marketings of such areas bear to total United States consumption. The average marketings of the last three years provide on the whole an equitable base, but the base period should be flexible enough to allow slight adjustments as between certain producing areas.

The use of such a base would allow, approximately, the following preliminary and temporary quotas:

	Short tons.
Continental beets	1,450,000
Louisiana and Florida	260,000
Hawaii	935,000
Puerto Rico	821,000
Philippine Islands	1,037,000
Cuba	1,944,000
Virgin Islands	5,000
Total	6,452,000

WOULD ADJUST SUPPLIES.

The application of such quotas would immediately adjust market supplies to consumption, and would provide a basis for reduction of production to the needs of the United States market.

Furthermore, in the negotiations for a new treaty between the United States and Cuba to replace the existing commercial convention, which negotiations are to be resumed immediately, favourable consideration will be given to an increase in the existing preferential on Cuban sugars, to an extent compatible with the joint interests of the two countries.

In addition to action made possible by such legislative and treaty changes, the Secretary of Agriculture already has authority to enter into codes and marketing agreements with manufacturers which would permit savings in manufacturing and distributing costs. If any agreements or codes are entered into, they should be in such form as to assure that producers and consumers share in the resulting savings.

FRANKLIN D. ROOSEVELT.

The White House, February, 8, 1934.

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NEMATODE CONTROL BY FERTILIZER.

(*Florida Grower for June-July,* 1933.)

CYANAMID PERMITS CULTIVATION OF INFESTED SOILS.
BY MARVIN H. WALKER.

Field tests in the past season gave convincing confirmation of the previous findings in laboratory studies and on the grounds of the State Experiment Stations that Cyanamid furnishes control for nematodes in a degree permitting crops to be grown successfully even on badly infested lands. Since the application also supplies an excellent fertilizer, the economy in the use of Cyanamid is self-evident and doubtless will lead to its employment on an enlarged scale.

Nematodes or root-knot infestation of lands continuously under cultivation has been a serious handicap to truck growing in Florida, where the organism lives through the mild winters. In the areas where vegetables have been raised for a long time the trouble has been increasingly present, making it difficult to grow profitable crops of tomatoes, lettuce, eggplant, cucumbers and a number of other products favoured by truck farmers.

Control heretofore has been effected in a minor measure by a system of crop rotation but this seldom was wholly satisfactory and often failed altogether in providing adequate relief. Complete eradication could be assured only by steam sterilization of the soil, so expensive as to be impracticable. Cyanamid has shown itself more economical and of reasonable efficiency, under exacting and repeated tryouts of its merits.

In the experiments conducted by Prof. J. R. Watson, entomologist, *it was found that "Cyanamid, thoroughly mixed with soil which is promptly and thoroughly irrigated, will so greatly reduce the number of nematodes, present as to make the growing of susceptible crops profitable. Cyanamid is, among commercial fertilizers, an inexpensive source of ammonia, and much, sometimes all, of the first cost is offset by its value as a fertilizer."

At Winter Haven, both C. G. Tilden and Britt Brothers had excellent results. The former succeeded in getting a good crop of cucumbers, with Cyanamid, from heavily infested land, following peppers. Land on which "cukes" had been a failure for four years gave the latter firm a satisfactory yield when Cyanamid was used. Palmetto truckers, including I. G. Andress, J. C. Courtney and Max Cohen, used Cyanamid on large acreages where infestation had been so heavy that little could be raised when susceptible crops were planted. Andress had a fine output of peppers from four acres though tomatoes preceding were a total loss. Courtney treated 50 acres of escarole and tomatoes and Cohen on 20 acres of tomatoes.

Tomatoes the year before had been a flat failure on eight acres J. R. Foy, of Ona. Planted in cucumbers five weeks after an application of Cyanamid, they turned out well, though plants on untreated portions of the same field didn't do any good. A. G. Kougleman, Manager for the Peerless Fruit Company of Palmetto, had a fine crop of tomatoes on 100 acres of nematode infested land.

For root-knot control, the recommended application of Cyanamid is 1,000 pounds per acre. Lime and ammonia are furnished in ample supply for fertility purposes, only potash and super-phosphate needing

*Florida Experiment Station—Bulletin 136.

to be added. A good mixture with which to supplement the Cyanamid is an 0-8-8 or an 0-16-16. Other requirements are indicated as follows.

"In making heavy applications of Cyanamid, it is necessary to wait some time before planting in order that the necessary chemical changes may take place. The standard rule to follow is to wait three days for each 100 pounds per acre, which means 30 days for 1,000 pounds. Lettuce, escarole and romaine are very tender plants and, where these crops are to be grown, the waiting period should be extended to 4 days for each 100 pounds, or 40 days for a 1,000-pound application.

"Direct contact of the Cyanamid with the nematode organisms is necessary for control, and for this reason even distribution and immediate thorough mixing with the soil are essential. The best procedure is to apply one-half the material on top of the soil, disc it in thoroughly, plow the land with a turning plow, and then apply the other half, discing it in as deeply as possible. If the Cyanamid is not applied evenly and mixed thoroughly with the soil, control will be spotted.

"Since moisture is necessary in the transformation of Cyanamid to hydrated lime and urea, the land should be thoroughly irrigated immediately after the application of the Cyanamid so that the sterilizing effect will take place at once. In the absence of irrigation facilities, the Cyanamid should be applied during the rainy season.

"Plants from nematode-free beds should be used. Usually seed beds are heavily infested with nematodes. To insure complete control they should be treated with 1,500 to 2,000 pounds of Cyanamid per acre. The same rule of 3 days for each 100 pounds per acre applies."

AUTHORISED PERSONS.

Return of Arrests for Quarter ending 30th September, 1933.

Name of Parish.	No. of Arrests
St. Thomas	2
Portland	13
St. Mary	19
St. Ann	12
Trelawny	3
St. James	2
Westmoreland	6
St. Elizabeth	3
Manchester	10
Clarendon	33
St. Catherine	5

Return of Arrests for Quarter ending 31st December, 1933.

Name of parish.	No. of Arrests.
Portland	14
St. Thomas	8
St. Mary	28
St. Ann	8
Trelawny	18
St. James	8
Hanover	4
Westmoreland	13
St. Ann	1
Manchester	28
Clarendon	55
St. Catherine	41

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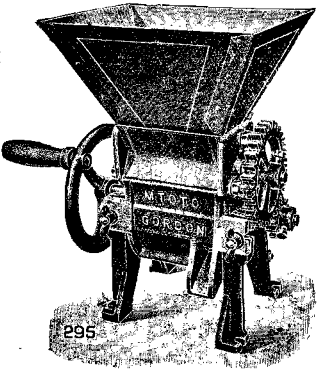

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TOBACCO NOTES.

(*Agricultural Gazette of New South Wales, September* 1, 1933.)

To Prevent Blue Mould Disease.

Blue mould disease was prevalent in all districts of the State, last season and the use of clean imported seed—put forward in some quarters as a factor in the control of this trouble—proved of no avail.

Blue mould is essentially a disease of young plants in the seed-bed, and methods employed must aim at preventing conditions favourable to its development. These may be summarised as follows:—

1. Prepare a number of seed-beds, suitably manured, so that the young plants may quickly become established.
2. Sow these beds at intervals of two or three weeks. Use seed from healthy crops.
3. Do not over-water the young plants; excessive moisture favours the disease.
4. Conserve heat, as a temperature below 45 deg. Fahr. favours the disease. Experiments conducted by the Department during a number of years indicate that if the temperature of the seedlings is not allowed to fall below 45 deg. Fahr., and the surrounding atmosphere is not allowed to become humid, blue mould does not make its appearance.
5. Allow the young plants plenty of air and sunlight.
6. Transplant at the earliest opportunity.
7. If the disease makes its appearance in any one of the beds, pull up and burn the infected plants immediately, and spray the remainder with Bordeaux mixture.

Tobacco Crop and Potassic Fertilisers.

Tobacco compared with other crops is a heavy feeder on potash, and as Anderson, Swanback and Street have shown (*55th Report, Connecticut Agricultural Experiment Station, Bulletin* 334) the presence of an ample supply of this element in the soil is important if a good quality cigar is to be obtained. Besides inducing characteristic starvation symptoms in the plant itself, the lack of potash renders the crop less resistant to drought and to certain types of disease. From the manufacturer's point of view also, an adequate potash content of the leaves is of great importance, for leaves deficient in this element will not come into "case" in damp weather after curing, that is, they remain brittle and difficult to handle owing to their lack of potash compounds, upon the hygroscopic properties of which the softening process depends. The fire-holding capacity of cured leaves is another property dependent on the potash present, but all the potassium salts tested did not prove equally effective. In general, the organic salts were the most suitable for producing the incandescent type of combustion required for a good cigar. A reduction in the dressing of potassic fertilizer given was found to affect the quality of the tobacco produced long before any actual decrease in yield was obtained, an annual dressing of so much as 200 lb. per acre being required to produce the best results at the Connecticut Tobacco Sub-station at Windsor, U.S.A.

(*Nature, Vol.* 132, *No.* 3325, *pp.* 141—*July 22nd*, 1933.)

GOVERNMENT ORDER REGULATING THE IMPORTATION OF FRESH FRUITS AND VEGETABLES.

A. R. SLATER.

By His Excellency SIR ALEXANDER RANSFORD SLATER, Knight Grand Cross of the Most Distinguished Order of Saint Michael and Saint George, Commander of the Most Excellent Order of the British Empire, Captain-General and Governor-in-Chief in and over the Island of Jamaica and Its Dependencies.

A PROCLAMATION.

Whereas by Section 2 (1) of The Customs (Importation Prohibition) Law, 1916 (Law 23 of 1916) it is enacted that the Governor may by Proclamation to be published in the Jamaica Gazette prohibit to be imported into this Island any goods:

And whereas by sub-section 7 of Section 2 of the said Law the Governor may at any time by subsequent Proclamation published in the Jamaica Gazette revoke, amend or vary any Proclamation issued under the said Law:

And whereas by Proclamation dated the 9th day of July, 1929, it was ordered and proclaimed that on and after the date of the publication of the said Proclamation in the Jamaica Gazette the importation into this Island of all fruits and vegetables (except dried or processed fruits and vegetables, grains, seeds and Irish potatoes) from all countries other than the United States of America should be and the same was thereby prohibited and it was provided that the said Proclamation should not be applicable to such fruit and vegetables as are the products of the Dominion of Canada, the United Kingdom and Ireland and which should be accompanied by a certificate stating that such products are home grown:

And whereas by Proclamation dated the 27th day of May, 1930, it was ordered and proclaimed that on and after the date of the publication of the said Proclamation in the Jamaica Gazette, the Proclamation dated the 9th July, 1929, should be and the same was thereby varied by excepting the vegetable known as "The Onion" from the application thereof:

And whereas it is desired to permit the importation of fruit and vegetables from the Bahamas:

And whereas it is deemed expedient to revoke the aforesaid Proclamations:

Now therefore I, Sir Alexander Ransford Slater, Knight Grand Cross of the Most Distinguished Order of Saint Michael and Saint George, Commander of the Most Excellent Order of the British Empire, Captain-General and Governor-in-Chief in and over the Island of Jamaica and Its Dependencies in exercise of the powers conferred by Section 2 (7) of the Customs (Importation Prohibition) Law, 1916, (Law 23 of 1916) and of all other powers in that behalf hereunto enabling do hereby order and proclaim as follows:

1. On and after the date of the publication of this Proclamation in the Jamaica Gazette, the importation into this Island of all fruits and vegetables (except dried or processed fruits and vegetables, grains,

seeds, Irish potatoes and onions including any species of "allium") from all countries shall be and the same is hereby prohibited; provided however, that this prohibition shall not be applicable to such fruits and vegetables as are the products of the countries specified in the Schedule to this Proclamation and which shall comply with and be subject to the conditions specified hereunder:—

(a) All importations permitted under this Proclamation shall be accompanied by a certificate from a competent authority of the Government of the country of origin stating that the produce is home grown, fresh, clean and free from diseases and pests.

(b) The certificate shall especially state that the Mediterranean fruit fly *Ceratitis capitata* does not exist in the country of origin.

(c) Importers of fruit and vegetables admitted under this Proclamation are required to give seven days clear notice of arrival of such produce to the Director of Agriculture.

(d) All produce admitted under this Proclamation shall be subject to inspection by an officer duly authorised by the Director of Agriculture.

(e) Upon being satisfied that any produce admitted under this Proclamation is infected with pests or disease, the Director of Agriculture shall be empowered to order any treatment to be applied to such produce with the object of destroying such pests or disease, or to order the destruction of such produce by and at the expense of the importer without compensation..

2. The Proclamations dated the 9th day of July, 1929, and the 27th day of May, 1930, and published in the Jamaica Gazette of the 11th day of July, 1929, and the 29th day of May, 1930, respectively, shall be and the same are hereby revoked.

3. This Proclamation may be cited as "The Customs (Importation Prohibition) Fruit and Vegetables Proclamation, 1934."

Given under my hand and the Broad Seal of this Island this 13th day of January in the twenty-fourth year of the Reign of of His Majesty King George V, Annoque Domini, 1934.

By command.

A. S. JELF,
Colonial Secretary.

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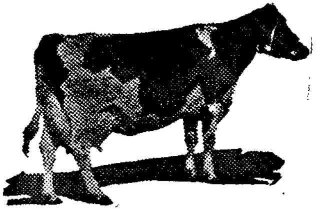

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REPORT ON TREE PLANTING IN ST. ANDREW FOR HALF-YEAR ENDING 31st DECEMBER, 1933.

By Mr. A. P. HANSON, Instructor for Saint Andrew.

I beg to report for His Excellency the Governor's information that the annual distribution of plants in connection with the Tree Planting Campaign in St. Andrew, came off successfully at the Public Gardens, Hope, on Tuesday the 17th October last.

There was the usual large turn out of representatives who took the plants away and distributed them through the Branch Agricultural Societies. The work continued until a late hour. The usual courtesy from Mr. Goodman, the Superintendent and the willingness of the labouring hands much facilitated the visitors. The supply of plants from the Department of Agriculture was supplemented by another from nurseries, kept by the Conservator of Forests.

The timber plants distributed numbered 10,334 and included Mahoe, Bullet-wood, Cedar, Fiddle-wood, Eucalyptus, Honduras Mahogany and native Mahogany. In this connection special mention must be made of the good work done locally by officers of the Mt. James Branch Society, as the result of which over 3,000 timber from the Conservator's Nurseries beyond Mt. Airy, were distributed to local cultivators during the six months.

In connection with the distribution at Hope there were sent out 2,569 citrus plants, being seedling grapefruit 1,950, budded Marsh Seedless grapefruit 58, budded navel orange 11, lime 25, Seville orange 25. It is not proposed to distribute seedling grapefruit and sweet orange plants in the future, the sour orange used for stock in budding being a safeguard against Foot-rot disease. Extensive budding work is now being conducted on seedling grapefruit trees planted in the past in connection with this campaign.

The coffee seedlings distributed on this occasion were 3,550. Though prices are comparatively low for coffee the demand is good. This campaign has contributed much to the annual output.

The weather condition since this distribution has been one of frequent heavy rains making it easy for the plants to grow. The pines, however, are a new introduction and have turned out a much lower percentage of survivals than the other kinds of timber. This plant does not seem to stand transplanting well generally, especially after it has attained about a foot in height.

There is more intelligence shown in the planting of trees, planting too deep was formerly a usual error. At the distribution I demonstrated the proper way to prepare a hole, to trim the roots and aerial parts of the tree and then the planting.

In many districts there are some beatiful specimens of trees which were planted in past years. Though there was reason for despairing somewhat of the Honduras Mahogany, yet there are quite a few of towering height. They make an interesting study as they grow fast and make large spurs quickly.

The period under report is outstanding for flood rains. The lands that were most scoured and broken by landslides were the denuded areas. The rough weather demonstrated also in very many instances the value of trees as a windbreak.

The Country Fires Law was a recurring topic at meetings of Branches. His Excellency's recent suggestion that when necessary request for Proclamations prohibiting the burning of land should come from the

local people has been well received and is expected to work satisfactorily.

At a meeting held at Stony Hill less than a year ago in the interest of Afforestation a Standing Committee was appointed whose functions are:—

(a) To investigate and report on all steps that have been taken in St. Andrew towards reafforestation and the preservation of forest trees.

(b) To submit recommendations and suggestions in connection with the subject to the Corporation of Kingston and St. Andrew.

(c) To encourage and enlist the services of voluntary workers in a system of tree planting and preservation of forests.

The Chairman of the Committee decided to await the arrival of the Director of Agriculture before pushing the matter he, the Chairman, has, however, been away from the Island for some time. Early action is expected when he returns.

FORESTRY.

There is now available at the Government Nursery at Monklands, in the parish of St. Thomas, Maiden Plum, Wild Annotto and Bullet-wood seedlings, and planters may avail themselves of these seedlings free by taking delivery on application to the Secretary of this Society or the Forest Officer, Mr. E. M. Brown, whose address is Surveyor General's Office, Kingston.

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TUNG OIL IN U.S.A.

Tropical Agriculture, September, 1933.

The establishment of the tung oil industry in the United States has been so successful during the last few years that it is now being expanded on a much larger scale. Seeds of the tree were first introduced into America through the United States Department of Agriculture in 1905 but extensive plantings were not made until some eight years ago in the Southern States where 25,000 acres of land have now been devoted to the industry. The oil, apart from being a valuable ingredient of varnishes and varnish paints is now employed in the manufacture of insulating compounds, brake linings, linoleum, water proofing fabrics, as a binder for wall board and plastic synthetic lumber, primers, synthetic resins, battery jar compounds and aeroplane tubing fillers.

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FENTON'S CABINET ESTABLISHMENT.

DIGEST OF ISLAND RAINFALL 1933.

The mean monthly rainfall was, for the seventh consecutive month, above the average which was exceeded in all Divisions except the West Central.

The greatest total fall for the month was 70.46 ins. at Balcarres in the North-Eastern Division and the heaviest fall in 24 hours was 11.89 ins. at Mount James in the Division on the 31st.

The mean number of rainy days was 12, the average for the month being 9. The greatest number was 27 at Hope Bay in the North-Eastern Division.

The greatest precipitation appears to have occurred about the middle of the month and again towards the end, particularly on the 31st.

The mean rainfall in each parish is given below:—

	Inches.		Inches.
Kingston	1.37	St. James	3.76
St. Andrew	14.47	Hanover	1.48
St. Thomas	9.69	Westmoreland	1.37
Portland	29.44	St. Elizabeth	2.83
St. Mary	20.84	Manchester	2.13
St. Ann	15.16	Clarendon	2.02
Trelawny	5.52	St. Catherine	8.35

THE ISLAND RAINFALL FOR THE YEAR 1933.

The comparative Table (A) attached, gives the mean monthly rainfall in each Division, with the respective totals, compared with the 60-year average, and shows a total excess of 42.89 inches.

The mean number of rainy days is also given and shows an excess of 16 over the 35-year average.

The mean rainfall per rainy day was 0.85 inch.

In the first half of the year the rainfall was 9% below the average, but in the second half it was 105% above—or more than double the average.

The following records were established during the year:—

(1) The month of February, with a mean rainfall of 0.48 inch, was the lowest recorded for any month during the past 63 years.

(2) The mean rainfall for July (11.44 ins.) is the highest recorded for that month in the past 63 years.

(3) The mean rainfall for August (14.49 ins.) is the highest recorded for that month during the past 63 years.

(4) The month of October with 28.13 ins. showed the highest mean recorded for any month during the past 63 years.

(5) The total mean rainfall for the Island (116-53 ins.) is the highest recorded for the past 63 years the previous highest being 106 22 in 1916.

(6) For the first during the past 63 years the mean monthly rainfall exceeded the average for seven consecutive months—the previous highest being 3 months.

(7) On the night of August 15-16 at Kingston, between 12.15 and 1.15 a.m., 4.35 inches, fell, which is the highest recorded fall for 1 hour.

Table (B) gives the mean rainfall in the 14 parishes each month: Portland with 183.94 inches had the highest total for the year, St. Thomas was next with 145.43 inches, and St. Andrew third with 143.20 inches. Kingston with 78.46 inches was the lowest.

Table B, which has been prepared for the fourteen parishes, will be found to have small differences with Table A for the respective Divisions. Table B shews the mean rainfall forthe year 1933, as 114.78 ins., whereas Table A shews the total as 116.53 ins. Likewise with those figures relating to the several months, such discrepancies are inevitable. Table B, however, gives the parish rainfall totals which enables a summary to be given below, shewing the totals in consecutive order starting from the greatest and terminating with the least, in order that the incidence of the distribution of the respective heavy rainfalls may be more satisfactorily studied. In addition to these figures are given the approximate percentages either above or below that of the 1933 mean total rainfall of 114.78 ins.

Summary shewing the consecutive order of Parish Rainfall.

Parish.		Mean total Rainfall for the year 1933.	Percentage above the 1933 mean, Approx.	Percentage below the 1933 mean, Approx.
		Ins.		
Portland ..	..	183.94	60%	..
St. Thomas	..	145.43	26	..
St. Andrew ..	..	143.20	24	..
Manchester ..	..	126.31	10	..
St. Mary ..	..	123.75	8	..
St. Catherine	..	115.07	1%	..
Clarendon ..	..	113.30	..	1%
Westmoreland	..	108.91	..	5
St. Ann ..	..	98 15	..	15
Hanover ..	..	96.41	..	16
St. James ..	..	91 94	..	20
St. Elizabeth	..	91.42	..	21
Trelawny ...	...	90 53	..	21
Kingston ...	...	78.46	..	32%

As a matter of comparison if the parishes. of, say, Portland, St. Thomas St. Andrew, St. Mary and St. Catherine of the eastern section of the Island be combined, it will be readily apparent that the precipitation for the year was about 50 per cent. greater than any five parishes of the western section, combined.

It will be noted, from this summary, that every parish has experienced a record of rainfall total in excess of the 60-year annual mean for th whole Island of 73.64 inches.

Weather Disturbances.

Under this heading reference should be made to the individual Weather Reports, reports, from the month of June to October, 1933, for particulars. It may, however, be stated that there were fifteen hurricanes or weather disturbances threatening this region during the 1933 hurricane season. No parallel weather condition is to be found in all past records.

(Jamaica Weather Report, Dec., 1933).

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CORRESPONDENCE INVITED.

RECIPE COMPETITION.

The Recipe Competition was kindly judged by Mrs. P. W. Sangster, of Giddy Hall, and Mrs. A. H. Jones, of Peggy Brown's Restaurant, Kingston, and the first and only prize has been awarded to Mrs. R. F. Perkins, Lumsden, Claremont P.O., for what was a really excellent effort.

The standard of entries was very high indeed and we shall be glad to publish them as space permits in the Journal. We publish part of the winning entry below.

The prize has been remitted to the prize winner, and it will be remembered that the donation was made by a member of the Board of Management who desires to remain anonymous.

We apologise for the delay, but there was some difficulty due to the indisposition of one of the judges, and in getting them together.

The Winning Entry for Our Competition.
By Mrs. R. J. Perkins, Claremont.

Household Recipes.

Monday.

Breakfast.—Fruit in season. Cornmeal porridge, boiled and buttered spinach with poached eggs on buttered toast (one slice to each person), sliced ripe tomatoes with lettuce, muffins and orange marmalade—Coffee, tea, milk, or cocoa as preferred.

Lunch—King fish boiled and served with butter sauce, pumpkin soup—Roasted chicken with home cured ox tongue, rice and peas boiled, Irish potatoes boiled and crushed with butter, orange pudding.

Tea—Home made bread and butter (thinly sliced), one egg cake, scones, home made pine jam.

Dinner—Fish fritters—Soup made from bones of chicken and trimmings of tongue, with barley and onions—chicken and tongue pie—Sweet potato rillettes, white yam crushed and buttered, roasted plantains, baked bananas with coconut milk or cream.

Recipes for Monday's Menu.

Breakfast.

Cornmeal porridge—boil 1 or 2 tablespoons of meal with 1 or 1½ cups milk and water (according to quantity desired) to consistency of porridge, add milk and sugar to taste.

Muffins—2 cups flour, 3 teaspoons baking powder, 1 tablespoon sugar, (this may be omitted), ½ teaspoon salt, 1 cup milk, 2 eggs, 4 tablespoons shortening—Sift flour, baking powder, salt and sugar together, add milk, well beaten eggs and melted shortening—mix well—half fill greased muffin tins and bake in moderate oven about 20 minutes.

Orange Marmalade—Weigh 1 lb. oranges (Seville) scrape or grate off the rind, cut in quarters and slice the rind thinly (take out seeds and put to soak separately in a very little water) throw peels and pulp into 3 pints of water, soak 24 hours: next day, add 3¾ lbs. sugar, boil the seeds and add the water to the bulk, boil all until it will jelly from the spoon, this will give about 5 jam glasses or a little more.

Orange Pudding—2 oranges, 1 lemon, ½ lb. stale sponge cake, 2 eggs, ½ teacup sugar, 1 tablespoon cornflour, 1 tablespoon butter.—Soak the cake in cold milk, whip up lightly, add the eggs and sugar beaten to a cream with the butter, add the cornflour, stir in the juice (and a small piece of the peel) of the fruit, put in a buttered mould and steam in boiling water for 1 hour, serve with sweet sauce.

Recipe for one egg cake for Tea—

1 cup sugar, 1 egg, 1 cup milk, 2 cups flour, 4 teaspoons baking powder, 2 tablespoons butter, 1 teaspoon flavoring, cream sugar and butter, mix in the egg, sift flour and baking powder together 3 times and add to the mixture. Gradually add the milk—add flavouring—pour into one tin or into 2 layer cake tins and bake for about 20 minutes.—Ice if desired—raisins and currants may also be added.

Scones.—1 cup flour sifted 2 or 3 times with 2 teaspoons baking powder, 1 tablespoon shortening rubbed in, ½ cup milk added and mixed—bake in muffin tins.

Pumpkin Soup—1 large slice pumpkin, 1½ quarts water, ½ lb. soup meat with a little salt pork or salt beef. A green country pepper, thyme and skellion, the pepper must not be allowed to burst in the soup—cut up pumpkin and add to water with the fresh meat, adding the salt meat about ½ an hour later, boil for another ½ hour, strain the soup and serve with small squares of fried bread.

To cure Ox Tongue—Get a fresh tongue from the butcher, mix up ½ cup table salt, ½ cup course salt, ½ cup brown sugar, and a *small* piece saltpetre, put these on to boil, and as soon as melted before the boiling commences, put in the tongue and let it boil in the pickle (the tongue may be slit in one or two places) leave the tongue to soak in this pickle turning it now and again until it is required when soak it in fresh water overnight and boil next day.—Of course the tongue must be properly cleaned before pickling. (Boil the tongue for about an hour in the pickle.)

Fish Fritters—Remains of king fish from lunch, mashed fine with seasoning, a tablespoon or less of butter, a little minced pepper, tomatoes, skellion and herbs, mix with 2 beaten eggs, roll in bread crumbs and fry in hot lard or Rexo.

Sweet Potato Rillettes—Mix mashed sweet potatoes thoroughly with a small tin of potted meat, or any scraps of finely minced meat, mould in small round shapes and fry in fat; the mixture must be seasoned with salt and pepper, and about 1 third meat to two-thirds potato. Fry a rich brown, taking care not to burn them.

Baked Bananas—Peel and halve some ripe bananas, then cut them length ways and cross ways, and lay these strips in a pie dish—pour over them, for each banana 2 tablespoons water, 1 of castor sugar, 1 teaspoonful of butter, melted, a piece of lemon and a dust of salt, (this last may be omitted); bake slowly for half an hour, basting constantly till the fruit is red and the juice thick—serve hot.

Chicken and Tongue Pie.—

Cut up chicken and slice tongue left over from lunch, fry a large onion or two small ones with a large tomato, cut up 2 or 3 boiled Irish potatoes and add with the chicken gravy, or if no gravy was left, rub up a dessert spoonful of flour with a little butter and boiling water, season with pepper and salt, put in a pie dish and cover with pastry; bake in a hot oven about 30 minutes.

Tuesday's Menu.

Breakfast—Fruit in season, or orange juice, banana porridge, codfish balls, rice muffins, buttered toast, banana jam.—Tea, coffee or cocoa.

Lunch.—Okra soup.—Baked lobster, yam balls, boiled rice, boiled and buttered cabbage, roasted sweet potatoes, chocho tart.

Tea.—Bread and butter—Lace cakes—Slices of cake from Monday's tea, spread with jam between.

Dinner.—Red peas soup, sardines on toast, roast leg of pork eaten with chutney—Pumpkin boiled and buttered, Irish potatoes boiled and browned with the pork, sweet potatoes roasted—Fruit salad.

Recipes for Tuesday's Menu.

Breakfast.

Banana Porridge.—Peel and grate 6 green bananas, throw the grated bananas into a pint of boiling water, boil for 25 minutes; add milk to whiten; boil for 10 minutes more; add sugar to taste.

Codfish Balls.—1 cup salt codfish, 2 cups potatoes, 1 egg, 1 tablespoon butter, ¼ teaspoon pepper. Wash fish in cold water and leave to soak all night; pull to small pieces, leaving fish in water all the time. Wash and peel potatoes and cut in pieces; cook fish and potatoes together until potatoes are tender, then drain and shake over fire until dry; mash and beat thoroughly with a wire potato masher, add butter and pepper; cool slightly and add beaten egg, beat all until light. Take up mixture in a spoon, moulding slightly with a knife; drop into deep hot fat and fry until brown, about one minute.

Rice Muffins.—Use Monday's muffin recipe, using 1 cup flour, 1 cup boiled rice (cold), 1 egg instead of two, and ⅔ cup milk instead of one; add rice last, mix in lightly; bake about 30 minutes in a moderate oven.

Banana Jam.—Choose large bananas, not too ripe, and to every 12 allow 6 sweet oranges and four lemons; peel bananas and cut into thin round slices, and to each 1 lb. allow ¾ lb. of granulated sugar; boil slowly for ¾ hour, squeeze the oranges and lemons on a glass squeezer and add the juice and all the pulp, removing the pips.

Lunch.—Okra soup. Two dozen okras, 1½d. worth of salt pork or small piece of salt beef and 1 lb. fresh soup meat; a small quantity of kale or calalu, salt, pepper, thyme, skellion, and 1 tomato; boil okras in 2 quarts water until seeds are red; add meats and go on boiling; add some kale or calalu chopped fine. This soup can be strained, a few shrimps added when boiling is an improvement.

Baked Lobster.—Boil the lobster, shell and pick it, chop fine, add 1 tablespoon butter, plenty of pepper and salt, a little Worcester or Pick-a-peppa sauce, a little vinegar, mix all together, put in buttered dish, breadcrumbs and dabs of butter on top—Bake.

Lunch.

Cho cho Tart.—Six chochos, ¾ lb. of sugar, 12 cloves, 1 lime, grated, the juice of 2 limes; line the pie-dish with pastry and leave some to cover the tart; pare, core, and boil the chochos with the cloves; when tender, slice them, not too thin, and put at bottom of the pie dish, sprinkle with sugar the grated lime peel and juice, cover with pastry, and bake from half-hour to three-quarters. Eaten when cold with a boiled custard it is nice, but can be served hot as apple tart. Half the above quantities may be used.

Tea.

Fleischmann's Yeast cakes make nice home made bread, and they will supply a recipe book for bread, buns, etc., the cakes can be had from the Standard Brands Inc., Tower Street, Kingston. The Lace cakes made by Mrs. Fray, Spring Plain, are sold all over the Island, put up in packets, and are very nice toasted and buttered, the directions are given on the packets.

To be continued.

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MARKETING NOTES.

Messrs. Gillespie Brothers & Co., Ltd., of London, in their January monthly report on the London Produce Market, indicate slight rises in prices for coffee, pimento and cocoa. Copra is a bad spot at the present time on the market. There is a hopeful tendency regarding the sugar and rum markets.

Sugar.

"We are indebted to Messrs. C. Czarinikow, Ltd., for the following interesting tables of production, consumption and stocks (in thousands of tons): and particulars of the average price of raw sugars over a number of years.

	1933/34.	1932/33.	1931/32.	1930/31.	1929/30.	1928/29.
Production	25,162	25,082	26,963	29,412	28,664	28,850
Consumption	..	26,302	26,100	26,939	26,752	27,479

	1933.	1932.	1931.	1930.	1929.	1928.
Stocks, 1 Sept.	6,971	7,599	7,422	5,900	4,590	3,670

	1933.	1932.	1931.	1930.	1929.	1928.	1927.
Annual average price of 96° c.i.f.	5/3	5/9½	6/3¾	6/7	9/0½	11/7½	13/9

Ginger.—

Jamaica descriptions have had a good year in the matter of price: and close about at their best: The range being 72/6 to 110/- per cwt. A year ago we were quoting 55/- to 90/-, and two years ago, 45/- to 85/-
London Stock of Jamaica:—1,764 pkgs. against 2021 in 1932.

Honey:

This has also been a satisfactory market on the whole during 1933, and the value of Jamaica closes at 35/- to 50/- per cwt., against 29/- to 50/- in 1932, and 18/- to 35/- in 1931, at the same date. Provided that supplies are not excessive, we look for the maintenance of satisfactory prices." (From Gillespie Bros. & Co., Ltd.)

LOCAL PRODUCE PRICES.

Annatto—Prime red seed, new crop	18/-	delivered	Outport
	19/-	"	Kingston
Cocoa—Ordinary ..	19/-	"	"
Fair fermented	19/-	"	"
Estates fermented	20/-	"	"
Coffee—Good ordinary ..	46/-	"	"
Fine ordinary ..	48/-	"	"
Manchester-B ..	48/-	"	"
Manchester-A	50/-	"	"
Ginger—Rhatoon ..	40/-	"	"
Ordinary ..	50/-	"	"
Medium ..	54/-	"	"
No. 1 ..	62/-	"	"
Honey—White ..	3/3	per gall.	delivered, Kgn.
Pale ..	2/9	"	"
Light ..	2/3	"	"
Dark ..	1/9	"	"

Kolanuts—Sound quality, well cured 5/- delivered Outport
6/- " Kingston.
Limejuice—10d. per gallon, for good green top-pulp quality, delivered wharf Outport, in new puncheons.
Orange Oil—Sweet, sound quality. 3/3 per lb delivered, Kingston, in containers.
Sarsaparilla—Well cured, red roots 38/- per 100 lbs., net wts. delivered, Kingston.
Wax—Pure and clear, 7d. per lb., nett weights, delivered, Kingston.

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14 Holes............1s. 9d. postage extra.
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POULTRY NOTES.

This is the breeding season. This is the period when the quality of the next year's pullets is decided. In a previous article the mating of poultry was discussed in a general way. This short article is intended to deal with this question in slightly more detail.

To ensure prolific pullets they must be bred not only from prolific parents but it is also wise that these parents should have sprung from prolific ancestors. What is even better, whenever it is possible, is the progeny test and where a hen or cock has already produced pullets of high laying capacity, they should be considered so valuable that they should be bred so long as they maintain their vigour and health to the last egg.

It is where the ancestry of the breeder has not been carefully recorded or is not known that the following observations will prove of assistance and be of importance in determining which hens are fit to breed from.

Research workers have discovered that there are distinct qualities inherent in hens, which affect their laying ability. These qualities are called:—1. Persistency. 2. Intensity. 3. Broodiness. 4. Winter Pauses.

Persistency is that quality which when the hen is possessed of it permits her to lay for long periods at a stretch, not necessarily every day, but so to speak without ceasing.

Intensity is the ability of the hen to lay every day for fairly long periods. A hen that lays more than three or more days in succession is said to possess this quality, the more days in succession the more intensity she is said to possess.

Broodiness is well known. Some strains produce few broody hens, others many. The hen that is never broody never wastes time, the hen that is frequently broody loses a week to ten days at a time without laying eggs.

Winter Pauses: Some hens after their pullet year never seem to lay from November to January, others even although they lay less intensively, do so. At this time of the year eggs are most valuable and breeders should always be preferred that have laid fairly well during the winter months.

The hen that has good persistency, high intensity, non-broodiness and winter laying ability makes of course the ideal hen and cockerels from her should be valued as future breeders as they are likely to transmit high laying capacity to their daughters.

Whilst all these qualities cannot be determined in a short period, the quality of intensity can always be. If any hen is noticed as laying five or six days on a stretch she should be further watched to check up on her for other good qualities as she is decidedly promising as a good breeder. To the opposite, hens of low intensity, even if they be persistent, will never lay as many eggs per annum, which is the acid test and so should not be used as breeders if there is anything better. Observations along these lines and putting the result of these observations in practice will improve one's pullets year by year and ultimately produce for you a yard of high producing poultry which is the only kind of poultry that pays for their feed and produce profit.

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and they drink like fishes—but they can't help it—the old man got in the habit of taking home a bottle of Lindo's Rum every evening and now they can't do without it—no wonder they are fastidious.

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BRANCH NOTES.

All reports received are acknowledged in this section of the Journal. Notes intended for publication should be written *on one side of the paper only.* [Ed.

ST. MARY: Albion Mtn.—Meeting held 1st February. There were seven members present, the morning being rainy. Mr. J. E. Francis, Assistant Secretary, was voted to take the chair. After prayer the minutes of last meeting were read and confirmed and matters arising therefrom discussed. Correspondence was dealt with. Mr. J. E. Francis, delegate to the Half-Yearly General Meeting gave a full and interesting report of the meeting. A vote of thanks was accorded him. It was moved, seconded and carried that a reminder be sent to the Registrar General re office for Albion Mtn. One Authorised Person present, reported "all correct." The Roll was called and the meeting adjourned.

Port Maria P.O. J. H. PETRIE, Secretary.

Carron Hall.—Meeting held 7th February. There were eighteen members in attendance, including the President, 1st Vice-President the Secretary and the Instructor, Mr. J. A. Banks. The President being a few minutes late, Mr. E. B. Johnson (1st Vice-President) took the chair. After prayer, the minutes of last meeting were read and adopted. Correspondence was read and discussed. Report was given by Authorized Persons. Report of the Highgate Conference was given by Messrs. Burnett and Thomas and Mr. E. B. Johnson, reported on the Half-Yearly General Meeting. A vote of thanks was tendered to each delegate. The matter of Mr. Banks' resignation, was warmly discussed. The Branch regrets having to lose Mr. Banks so soon as his instructions and demonstrations were always of intrinsic value to the Branch. The meeting impressed the retiring Instructor with the feeling that he had not laboured in vain. The Rev. Jas. MacNee showed where he was personally benefitted by the Instructor's remarks on

citrus. The meeting decided to show in a tangible way its appreciation of Mr. Banks' faithful services. At this juncture the Instructor was called upon to give his address. It is interesting to note that on his last visit Mr. Banks gave a practical demonstration as usual in the School Garden, Carron Hall, on budding In addressing the meeting he first of all wished the Branch a prosperous New Year in agricultural pursuits. "Never give up, be courageous," were words from his loving heart. He made special reference to intensive as well as extensive cultivation. He was accorded a vote of thanks, and after this the National Anthem was sung and the meeting terminated.

Carron Hall P.O. H. A. White,
Secretary.

Camberwell.—Meeting held 16.2.34. There were present: Mr. D. McCleary, presiding, the Agricultural Instructor, the Assistant Secretary, other members, some visitors and the Secretary. Later on the President attended. A welcome was extended to the visitors by the Secretary. Prayer was offered. The minutes of the last meeting were read and confirmed and matters arising from them were disposed of. The need for a local Post Office was again brought up. The matter was discussed at length, and freely supported. A resolution re Juvenile membership was brought forward and the need for this was explained by the Instructor. It was felt that efforts should be put forward to this end. One of the visitors was enrolled as a member. The Instructor gave a most useful lecture, and explained the proper way to cut trenches, so as to retain the richness in the land. Amongst other things, he impressed on the members the necessity of increasing the membership, so as to enable the Branch to fight and win its battles. He also encouraged them to keep together, and do all that is possible for the best to be obtained from agriculture. A vote of thanks was moved, seconded and conveyd to him. He suitably responded. The Roll was called, and the National Anthem was sung. The meeting then adjourned.

Annotto Bay. A. E. Leo. Giscombe,
Secretary.

Job's Hill.—Meeting held 9.2.34, was opened with prayer. Present: were J. Dempster, 1st Vice-President, presiding, R. B. Ritche, President and 6 other members including the acting Secretary. The minutes were read and confirmed and matters arising therefrom dealt with. Correspondence was read and discussed. The meeting was pleased at the answer from the Parochial Board relative to the condition of the Rock River-Job's Hill Road. The Chairman expressed regret at the absence of the Instructor, especially as he may not again visit the Branch officially. There were some discussions relative to the cultivatiou of tobacco. Several members promised to start. The President spoke very encouragingly, advising members to keep up the Branch. The National Anthem was sung and the meeting adjourned.

Mt. Regale P.O. R. S. Owen,
Acting Secretary.

Marlborough.—Meeting held 27th February. Present: the Instructor, Mr. J. A. Banks, Mr. Z. Ffrench, President, Mr. E S. Bent, 1st Vice-President, 6 others and the Secretary. Meeting opened with prayer. Minutes of last meeting were read and adopted and matters arising therefrom discussed. Matters re Foot Bridges and Burke Spring Water pipe were deferred awaiting the action of the Parochial Board. The matter of a Presensentation Fund or otherwise for the the retiring Instructor was deferred. Correspondence was read and tabled. Authorised Person, W. J. McKoy, reported arrests made. His badges and handcuffs were in order. The Instructor addressed the meeting and bade farewell to the Branch. He advised members to support his successor and cooperate. A vote of thanks was given him. President and others expressed regret at losing the services of the Instructor and wished him long life and God's blessing. Roll Call was taken. It was agreed that the Secretary write the Parochial Board asking that Road No. 27 be improved. The National Anthem closed the meeting.

Pear Tree Grove P.O. David A. Ford,
Secretary.

Wallingford.—February 9, 1934. The President in the chair was supported by two Vice-Presidents and eight other members. Instructor Coke sent an apology for absence. The President reported that the Parochial Board had sent no reply to the petition in respect to the Maiden Hall Water Supply destroyed by the flood rains of August, 1933. Two members were nominated as Authorised Persons. Plans were made for a Social Entertainment on April 5th at night. A resolution of appreciation of the services of Mr. T. Z. Gordon, a Vice-President, was adopted, as he was stated to be leaving the district at the end of February.

From the Acting Secretary.

Central St. Mary.—Meeting held 8th February. Present: Mr. F. A. Williams, 1st Vice-President, Mrs. C. C. Anderson, 2nd Vice-President, four others and the Secretary

The minutes of the previous meeting were read and confirmed and matters arising therefrom dealt with. The chief business for the meeting were (a) Arrangements for Annual Meeting, (b) Arrangement to present Mr. J. A. Banks with a souvenir and an address. This short meeting closed with the singing of the National Anthem.

Richmond P.O. C. C. LEE,
Secretary.

ST. ANN. Pedro.—Meeting held 28th February. Present: The Instructor, Mr. C. V. Atkinson, eight members, three visitors and the Secretary. Mr. M. Kidd was voted Chairman. He expressed pleasure in seeing the Instructor who was always punctual, and described him as the 'hardest working Instructor' he ever saw. He gave a hearty welcome to all. The minutes of the last meeting were read and confirmed and the following matters arising therefrom were dealt with:—(a) Report on the distribution of timber seedlings in December last. (b) Free seeds of corn and peas for storm sufferers. The Instructor gave a very instructive lecture on intensive cultivation, concentration upon small plots. He gave practical examples to members of the success achieved in this way. He gave instructions regarding buds, how they were to be obtained and the drive be proposed in this direction He expressed pleasure in seeing the new varieties he established last year successful. Suggestion was made to strengthen the corps of Authorised Persons and to further minimise petty losses to cultivators. The meeting arranged to discuss corn plantiog at its March meeting and to encourage a larger attendance of members. A drive is to be made to increase the membership by a considerable number. The meeting adjourned with the singing of the National Anthem.

Bensonton. C. L. BECKFORD,
Secretary.

Brittonville—Meeting held 21.2.34. Members congregated were: Messrs J. Lugg, President; C. V. Atkinson, Instructor; five members, many visitors and the Secretary. After prayer the minutes of the December meeting were read and confirmed. As arising therefrom the Instructor expressed the hope that the members were making use of the tools. Re Rat Campaign, arrangemnts were made and best methods being sought for a systematic destruction of these rodents. The Instructor gave a well appreciated lecture. The topic was "Intensive cultivation." He showed the House that it is best to stick to what they have and climb the ladder of success by putting one stone upon another. After this fitting address, the Secretary, Assistant Secretary and others voiced their thanks, accompanied by short deliberations on the salient points emphasised by the Instructor. At the request of a member the symptoms of Panama Disease were explained by the Instructor. Authorised Persons present reported all correct. A very beneficial meeting was brought to a close with the singing of "The King."

Claremont P.O. C. THOMAS,
Assistant Secretary.

PORTLAND: Craigmill.—Meeting held 6th February. Present: Messrs. J. T. Lowe, President, D. E. Baugh, 1st Vice-President, G. W. Wray, Instructor; four other members, three visitors and the Secretary. The meeting opened with prayer. The minutes of the last meeting were read and confirmed, and business arising from them dealt with. Correspondence was read and discussed. Authorised Persons present reported on their work. The delegate's report of the recent Half-Yearly General Meeting was deferred to next meeting. The Instructor in his remarks gave various reasons why parties should become members of the Agricultural Society, and gave a short lecture on the necessity of drains, and the mode of making them. He also pointed out the advisability of cover crops in a cultivation during rainy weather. A vote of thanks was conveyed to the Instructor in the usual manner for his valued instructions. The marking of the roll and singing of the National Anthem terminated the meeting.

Buff Bay P.O. (REV.) T. LAWRENCE,
Secretary.

Belvedere.—Meeting held 9th February. Present were: Mr. W. A. Coates, President; the Instructor, Mr. Gilbert Wray; 6 other members and the Secretary. The minutes of the last meeting were read and confirmed. Arrangements were made for a function to be held on the 1st Friday in March, to raise some money for the Branch. The Instructor in an interesting address asked the people to try and swell the number of members so that the Government may be encouraged in the work. Reference was made to Mr. Barnes' lecture at Highgate in which he strongly advised that more use be made of farm yard manure. The Instructor advised a more extensive cultivation of hillside lands from which we are now losing so much of the fertility of the soil. He said that terrace like trenching would help the situation very much to retain much of the humus carried away by rivers to the sea. The Instructor bade the Branch good-bye and asked that faithful support be given to his successor. There were many expressions of appreciation of the Instructors services. The installation of a Penny Bank in the district was

proposed. A resolution from the Birnamwood Branch re weighing of bananas for sale, instead of grading them was discussed but decision on the matter was deferred for a larger attendance. The meeting adjourned after the singing of the National Anthem.

Prior Park P.O. L. C. BLAIR,
Secretary.

Skibo.—Meeting held February 5th. Present were: the Hon. K. V. Abendana, M.L.C., Messrs I. Pryce, President; J. Jackson, C. W. Francis, J. Reid, 1st, 2nd, 3rd, Vice-Presidents Mrs. B .McLeary, Treasurer; many members and over one hundred visitors. The meeting was called to order by Mr. I. Priyce, after which in a few well chosen words the Hon. Member was introduced. This was followed by the reading of the previous minutes their confirmation and the discussion of items therefrom, viz.: the appointment of a Ticket Distributor for the district, the bridging of the Taylor's, Dry and John Crow Hole Springs. The Hon. Member gave a practical address on systematic cultivation, and the inadvisability of depending on bananas alone, and among many other salient remarks pledged his support to the Branch. A hearty vote of thanks was accorded him, while a vote of confidence was also uninamously passed on behalf of the district to the Hon. Member. Other matters dealt with were Authorised Persons' report. Delegate's report on the Half-Yearly General Meeting, etc. The Instructor gave a very interesting address on proper drainage for maintaining the soil's fertility, for which he was heartily thanked. Minor matters were dealt with and the meeting terminated with the singing of the National Anthem.

Skibo P.O. R. C. WATSON,
Secretary.

ST. ELIZABETH: Brighton.—Meeting held 9th February. Present: Mr. J. S. Shaw, 1st Vice President in the chair, Instructor, G. R. Graham; 6 other members, a few visitors, and the Secretary. After prayer the minutes of the previous meeting were read and confirmed and matters arising therefrom dealt with. Letter re available corn supply and petition to the parish Board re improvement of the surface of the Brighton-Donegal Road were read. In the case of the former the Secretary was instructed to give the required information, and re the latter to send on the petition to the proper authorities. The 2 Authorised Persons present reported all correct. The Instructor lectured on Coffee pruning. He dealt with the subject exhaustively and gave several Blackboard illustrations. The members regretted the coming early departure of Instructor Graham from this area. After the singing of the Doxology and the National Anthem the meeting adjourned.

Brighton P.O. C. H. BLAKE,
Secretary.

Lacovia:—Meeting held 10.2.34. There were present: Messrs. A. W. Brown, Vice-President; G. W. Graham, (Instructor) several members and the Secretary. The meeting was opened with prayer by the President after which he welcomed everyone. The minutes of the previous meeting were read and confirmed. As matters arising therefrom the Instructor informed the House that the Society had agreed to subsidize the boar of Mr. Farquharson of Cornwall. He urged the members to take full advantage of it so as to improve their small stock. Correspondence re road matters were dealt with. The Instructor addressed the meeting on the value of the Experimental Plot, and the necessity of promoting the Citrus Industry. The address was an inspriring one and was well received. He was thanked. Two Authorised Persons reported all correct. After other matters were discussed the meeting adjourned.

Lacovia P.O. A. J. CLARKE,
Secretary.

Pisgah.—Meeting held 7th February. The juveniles with Miss M. L. Shakes, presiding taking the lead off. Songs, select readings and recitations were rendered. The Instructor arranged to visit juvenile gardens next month. Mr. G. J. Johnson, founder of the Branch, presented the juveniles with a half bred cock and wished them every success, this being the last time at which he would attend their meeting. A number of ex-Service men attended the meeting to hear about land settlement which was dealt with by the President The Instructor promised to help them as far as he could. The men agreed to form a local Branch Association. The Authorised Persons present gave favourable reports. The Instructor who spent the day visting fields and giving demonstrations was asked to defer his usual address. Many persons complained that peas from storm relief supply did not grow well. There were expressions of regret at the pending departure of the President and the Secretary of the Branch and they were asked to remain as honourary members of the Branch. Both President and Secretary in accepting the kindly sentiments, exhorted the members to keep together and work hard to maintain the integrity of their Branch. Financial matters were dealt with and the meeting terminated.

(MRS.) A. JOHNSON,
Springfield P.O. Secretary.

CLARENDON: Crooked River.—Meeting held 9th February. Present: Rev. C. A. Spencer, President; D. C. Scott, Esq., 1st Vice-President, A. R. E. Scott, Esq., Treasurer; 14 other members and the Secretary. After a hymn and prayer the Chairman welcomed all present and encouraged them to be regular and punctual in attendance. The minutes of the previous meeting were then read and confirmed, and a few matters arising therefrom were discussed. Messrs. D. C. Scott, J. H. Crossfield and D. A. Hewitt reported on the result of the growth of P.O.J. cane cuttings received from Hope. These were good except in the cases where planting was delayed too long and the cuttings decayed. Letter was read from Instructor stating his inability to attend as he had to be at another Branch Meeting on the same afternoon. Two Authorised Persons present gave their reports and received each a copy of the Law which was read to them. Mr. A. R. E. Scott, the delegate to the Half-Yearly Meeting gave a very splendid and interesting report. A a result the matter of the manufacture of sugar by local settlers will be discussed at next meeting, and the Central Board of Health will be asked to start the Yaws Campaign in this area as early as is possible, this being one of the districts in which the disease is very prevalent. Mr. Scott was heartily thanked for his report. The matter of vaccination of children by the D.M.O. was discussed and it was felt that a hardship would be created on the people if they have to take their children to Chapelton, a distance of six miles and more in some cases. It was decided that he be asked to attend at this centre which is a very convenient one for those in this section. Miss Thompson read an interesting article from the November Journal on the Papaw and was thanked. The agenda for next meeting was fixed and the meeting adjourned after the singing of the National Anthem.

Crooked River P.O. A. M. Smith,
Secretary.

Croft's Hill.—Meeting held 8.2.34. Present: Messrs. D. Graham, 1st Vice-President; in the chair, V. E. Mitchell, Secretary, R. E. Maxwell, Instructor, 6 members and the Assistant Secretary. The minutes of last meeting were read and confirmed, and as arising therefrom the upkeep of the nursery was discussed. As some of the members thought 1/6 too much for a Marsh Seedless seedling, 1/- was agreed upon as the future price. Crossrrespondence was next taken. The tank for the district came up for discussion. The district suffers much in times of drought, hence a public tank is highly necessary, but the promissed one is not yet started. The correspondence re country fires was dealt with. The Instructor as a prelude to his talk on "Coffee" deplored the small membership. Two Authorised Persons present reported no arrest; but one said his crown and badge had been stolen. Minor matters were dealt with after which the meeting rose with "The King."

Croft's Hill P.O. A. I. Williams,
Assistant Secretary.

ST. CATHERINE: Ewarton.—Meeting held 6th February. Present: Mr. W. C. Irving, presiding; Mr. O. P. Martin, Agricultural Instructor; Mr. R. E. Maxwell, Assistant Instructor; fourteen other members and six visitors, including Mr. Charles Cummings of Linstead. After the usual preliminaries the President introduced Mr. Cummings and asked whether as a citrus dealer, he would say why the price of citrus was at present so low. In reply he gave a brief outline of market conditions abroad pointing out the fact that competition was very keen and the handling of fruit in Jamaica was not up to the required standard. The Instructor in his address said he was pleased to see the number of ladies present He felt that lady membership was of great assistance to the Branch Societies. Speaking on agricultural methods, he said that members should do more to improve their holdings. In connection with citrus, he said that our fruits were going into the market at a time when it was over crowded, and in an inferior condition to fruits from other countries. This brought us to the question of varieties that should be produced, and methods of cultivation and handling. The Valencia orange and the Marsh Seedless grapefruit were varieties that could hang on the trees for an extended period. These varieties could reach the markets at a time where there was less congestion and better prices. With regard to budding, the advantages of "top working" on large trees were pointed out. Mr. Maxwell, the Assistant Instructor, said he hoped the members would put into practice the instruction that they had been from time to time receiving. In his address he dealt with vegetable cultivation. He pointed out the value of vegetables, and dealt with seed-sowing, growing of plants and method of combatting insects. The Instructor replied to questions put to him in connection with disease of cocoanuts, and gave hints on methods of rat-poisoning. The meeting closed with the singing of the National Anthem.

Ewarton P.O. W. B. Leslie,
Secretary.

O'Meally.—Meeting held 22.2.34. Thirty-six members and many visitors were present. Minutes of the previous meeting were read and confirmed. Mr. Watkis advised the

holding of out-door meetings and emphasized the value of the Journals and the popularity of Instructor O. P. Martin, the founder of the Juvenile Branch in this parish. The Instructor gave valuable instruction on Citrus and impressed on members to cultivate this product. A song was rendered. Mr. A. Baird spoke on the barriers of our progress and said that most if not all of them can be removed if we live unselfishly under the banner of the J.A.S. Another song, was rendered, after which Mr. DaCosta spoke strongly on the value of the J.A.S. and the good it has done, is doing and will yet do. He touched on many points of improvements. The Instructor spoke on the cultivation of bananas. He was thanked. Badges and handcuffs of Authorised Persons were inspected. Instruction re their duties was given them by the Instructor. The gentlemen were heartily thanked for their valuable help. The National Anthem was sung and meeting adjourned.

Harkers Hall P.O. S. H. Anderson,
Secretary.

HANOVER: Hopewell.—Meeting held 2nd February. There were present, Mr O. C. Donaldson, J.P., presiding, Mr. C. C. Hastings, Instructor, eleven other members a few interested visitors and the Secretary. Meeting commenced with prayer. The Chairman welcomed the members and visitors in a brief interesting manner after which the minutes of the last meeting were confirmed. Several matters arising were dealt with such as the report of delegate to Half-Yearly Meeting of the Associated Branches, the distribution of different seeds and the matter of a Fair for augmenting the funds of the branch. With regard to the Fair it was moved and seconded and unanimously carried that the Church and the Branch unite to stage a monster Fair on the 1st day of August, 1934, a fitting way to celebrate the Centenary of the Abolition of Slavery. A Committee of ten members was appointed to organise the matter and the Secretary was deputed to approach the Church to get their co-operation. A letter was read from Mr. W. M. Dickson, M.P.B., asking the Branch to co-operate with him in getting the Parochial Board to pay labourers fortnightly instead of monthly. The meeting decided to take no steps in the matter as there were no grounds for complaint. The Instructor spoke on various matters affecting the agricultural and social welfare of the community such as the Banana Borer, the murderous effects of ganga, the promiscuous use of untrue scales by shopkeepers and other dealers, and appealed to all cultivators to join the Agricultural Society as there were only about 6,000 members out of an agricultural population of about 100,000. Messrs. Stennett, Downie and the Secretary gave hints on corn cultivation and the Instructor mentioned why works of improvements were held up

Hopewell P.O C. S. Morrison,
Secretary.

ST. THOMAS: Hagley Gap.—Meeting held 23rd February. There was a good turn out of members. The President, Secretary and Mr. Josiah Orgill extended a warm welcome to Instructor McLaren. This was supported by the whole meeting. The Instructor in his usual lucid and practical way gave useful information on the growth of Giant Plantain, and encouraged the introduction of this plantain into the district. He also stressed the importance of paying special attention to the growth of Citrus Fruit, especially the Marsh Seedless variety of grapefruit and the Valencia species of oranges. He also thought it would be a good thing for members of the Branch to turn their attention to the cultivation of garden eggs, cucumbers and sweet peppers. He advised that all eggs should not be put in one basket, so he further advocated the increased and careful cultivation of coffee. The Instructor got a unanimous vote of thanks for his splendid lecture. Minor matters including the reports of Authorised Persons were taken and the meeting adjourned.

Hagley Gap P.O. J. B. Heywood,
Secretary.

ST. ANDREW: Hall's Delight.—Meeting held 23rd February. Present: Mr. W. C. Syer, J. P., in the chair, the Rev. J. J. Higgins, 7 other members (three enrolled at the meeting) and the Secretary. The minutes of the last meeting were read and confirmed and matters arising therefrom discussed. It was decided that Mrs. A. Henry should be presented with a book as a token of appreciation by the Branch of her services as Secretary for over three years. The President handed in 2/6 and promised to purchase the book himself when the required amount was collected. Each member was taxed sixpence and Rev. Mr. Higgins and the Secretary paid immediately while other members promised to pay early. The President spoke effectively on the picking and carrying of citrus fruit and explained how he cared and picked his own fruit. He also mentioned that he had ordered 5,000 clippers from the Mother Country and he intends introducing them to the members. They would cost about 3/6 each. He advised members to plant cedar trees, and explained how young plants could be procured. A hearty vote of thanks was accorded him. The meeting terminated.

Mavis Bank P.O. G. H. Hind,
Secretary.

Rock Hall.—Meeting held February 27. 1934. Present: Mr. Theo. Heslop, in the chair, Mr. A. P. Hanson, Ag. Instructor, Mrs J. Burke, Treasurer, 9 other members and the Secretary. Apologies for absence were received. Report of a public meeting, which was held in the district on the 26th January to deal with matters agricultural when the Hon. T. J. Cawley and others were present, was submitted. The School question was discussed. Correspondence was dealt with. The Instructor addressed the meeting advising all to go forward. He encouraged members to purchase a Coffee Pulper before the crop. He spoke on the citrus industry and showed the new implement that should be used for the harvesting of the fruit. A vote of thanks was accorded him. Then Mr. W. Bolton spoke on the usefulness of the J. A. Society. One Authorised Person reported all correct. After dealing with minor matters the meeting came to its close with the singing of the Doxology.

Red Hills P.O. Mrs. B. Heslope,
Secretary.

TRELAWNY: Wilson's Run.—Meeting held 13th Feb. Present: Messrs. W. A. Motto, President; G. Coke and J. Pinnock, 1st and 2nd Vice-Presidents, six other members, several visitors, children of the Upper Standards of the school and the Secretary. The meeting was opened with prayer by the President, who also welcomed those present. The minutes of the last meeting were read and confirmed. Business from the minutes were dealt with. The Authorised Persons present had nothing to report. The President gave a list of those who received peas from the amount received. The Secretary spoke on the Exhibition, urging that members make it possible to attend. After wishing all present success in agriculture during the year, the President closed the meeting.

Troy P.O. (Miss) G. Evelina Bailey,
Secretary.

Stewart Town.—Meeting held 27.2.34, There were present: Rev. J. S. Rowe, President, Mr. W. W. Benjamin, Vice-President; Mr. Eustace Fagan, Treasurer. C. M. Robotham, Instructor; five other members, three visitors and the Secretary. Minutes of last meeting were read and confirmed. It was moved and seconded that each member subscribe 1/- for entertainment at the Annual Meeting on the 24th April, next. It was decided to invite the Supervisor to attend. The President, Secretary and Treasurer were asked to prepare reports for that meeting. Letter was read from Instructor Robotham re Agricultural Conference to be held at Brown's Town on the 15th March. The Instructor gave a very lengthy and instructive address on various kinds of diseases which affect plants. The National Anthem was sung and the meeting terminated.

Stewart Town P.O. W. T. Miller,
Secretary.

ST. JAMES: Springfield.—Meeting held 23rd January. Present: Mr. S. Mitchell, 1st Vice-President; presiding, Mr. W. D. Marr, Agricultural Instructor, fourteen members and the Secretary. The minutes of the previous meeting were read and confirmed and as arising therefrom, the following matters were dealt with:—Seed Distribution—Holdings Improvement Competition. Regarding this matter the Instructor reported that the Competition would be abandoned as per instructions from Head Office. Resolution re Mount Horeb-Cambridge Road. The Secretary stated that this resolution was duly placed before the Board of Management. Report of delegate to Half-Yearly Meeting was adopted and delegate thanked. The Instructor spoke on the necessity of having an Association of Branches for the parish. It was a means of the small man getting in touch with the agricultural experts of the country. A matter which could be tackled is the better representation of the parish on the Board of Management. Several members spoke in favour. It was unanimously agreed that the Secretary write to the Mt. Horeb Branch stating the willingness of this Branch to co-operate. The matter of asking Parochial Board to take over the spring at Providence was deferred to next meeting. The unsatisfactory condition of the Thompson Spring was discussed. It was felt that the spring should be put in order before the dry weather sets in. The Secretary was instructed to write to the Parochial Board. Two Authorised Persons present gave their reports. The Secretary was instructed to request Inspector of Police to send an officer to lecture to Authorised Persons. Meeting terminated with the singing of the National Anthem.

Point P.O. Eric R. James,
Secretary.

When corresponding with Advertisers, mention the Journal of the

JAMAICA AGRICULTURAL SOCIETY.

Other Reports Received.

Branch.	Date of Meeting.	Attendance.	Business.	Secretary.
Portland: Balcarres ..	28.2.34	17	Banana—Buying by weight. Address by Mr. F. E. Nesbitt.	Mrs. A. V. Nesbitt.
St. Mary: Baxters Mtn.	20.2.34	24	Authorised Persons: Membership: Road No. 31	R. J. Lawson-Ricketts
Rock River ..	26.2.34	17	Address by Instructor Banks—Acknowledgement of services of Instructor this being his last meeting before retirement.	J. A. Bowen
St. Andrew: Hall's Delight	25.1.34	10	Report of delegate on General Meeting. Catch Crops, *Citrus, Forestry.* Address by Instructor McLaren.	G. H. Hind.
Mannings Hill	21.1.34	..	Catch Crops. Addresses by Messrs. L. Smith and T. A. Jones and Miss E. E. Harrison.	W. H. Mills.
St. Catherine: Hampshire ..	27.2.34	51	Purchase of Saanen Buck: Canes Juvenile Branch: Addresses by E. A. Mc Neil, Esq., J.P., Mr. Grant, and Instructor Martin. Gift of two guineas from Mr. McNeil.	E. A. L. Rowe.
Princessfield	26.2.34	..	Pulper. Citrus. Address by Instructor Martin.	P. G. C. Graham
St. Elizabeth: Kilmarnock ..	13.2.34.	24	Authorised Persons: Road. Juvenile Branch: Nursery: Gilnock Show: Instructor G. Graham's transfer.	J. E. Monteith.
Manchester: Mile Gully ..	23.2.34	10	Praedial Larceny: Authorised Persons: Quick transportation of mails. Citrus Industry, Address by Instructor Darby.	T. A. Morris.
Clarendon: Thompson Town ..	4.1.34	24	Authorised Persons: Citrus Industry: Address by by Instructor Shirley.	S. A. Lennan
Tweedside ..	27.2.34	..	Savings Bank, Banana cultivation, Morgans Forest land settlement.	E. W. Boyd.

THE JOURNAL

OF THE

Jamaica Agricultural Society.

The more people do the more they can do; he who does nothing renders himself incapable of doing anything; while we are executing one work we are preparing ourselves for undertaking another.

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BOARD OF MANAGEMENT.

The regular monthly meeting of the Board of Management of the *Jamaica Agricultural Society* was held at the office of the Society, 11 North Parade, Kingston, on Wednesday the 7th March, 1934, at 11.30 a.m. There were present:—Hon. T. J. Cawley, First Vice-President, presiding, Hon. G. Seymour Seymour, O.B.E. Third Vice-President, Hon. A. C. Barnes, Director of Agriculture, (ex officio), Messrs. Sidney Barton C. O. Cover, H. E. Lewis, T. P. V. McDaniel, U. Theo. McKay, D. D. Phillips, S. M. Walker, W. Harper Watson, Hon. W. H. W. Westmorland and Major G. B. Pease, also Messrs. P. St. L. Bacquie and L. L. Carrington, Supervisors of Instructors and Glaister Baxter, Secretary.

Apologies for Absence.—

Apologies for absence were submitted from Rev. W. J. Thompson and Mr. T. R. Williams.

Confirmation of the Minutes of the previous Meeting.—

The Secretary stated that the minutes had been circulated.

After some minor amendments it was moved by Mr. H. E. Lewis, seconded by Mr. McDaniel, that the minutes be taken as read and confirmed.

This was carried.

Matters arising out of the previous Minutes.—

(a) *Resolution re Compassionate Allowance for Mrs. Barclay.*—Mr. Harper Watson moved that a compassionate allowance of £100 be voted for the widow of the late John Barclay, O.B.E., former Secretary of the Jamaica Agricultural Society, from the funds of this Society.

This was seconded by Mr. U. Theo. McKay.

After discussion, Mr. Watson with the permission of his seconder, amended the resolution to read £50 instead of £100 and added that the amount be paid at the rate of One Pound per week for 50 weeks as soon as funds are available.

The resolution was put to the vote and unanimously carried.

Appointment of Assistant Instructors.—

The Chairman then suggested that the Board proceed with the interviewing of the candidates, and appointment of the four Assistant Instructors.

This was agreed to.

The Secretary read report of the Special Committee appointed for the preliminary selection of applicants for the positions of Agricultural Instructors, as follows:—

March 2nd, 1934.

To the Board of Management:

Gentlemen:

Your Special Committee appointed to deal with applicants for the vacant positions of Agricultural Instructors met on Wednesday, 21st February, 1934, and went through 182 applications. Twenty-six men were invited to appear before the Committee on Wednesday, 28th February. These applicants were interviewed and examined and eight were considered suitable for the positions.

In addition, Mr. E. J. Gregory, who had been an Agricultural Instructor before, applied for reinstatement, and for this reason he has, in addition to the eight selected, been instructed to appear before the Board.

The Committee recoommends that the Instructors appointed be given some preliminary training at Hope, Grove Place and later on, as is customary, with the Senior Instructors, and understands that the Hon. Director of Agriculture is willing to co-operate in this matter.

Yours very truly,
(Sgd.) GLAISTER BAXTER,
Secretary of Committee.

Some discussion as to whether Mr. Gregory was to be interviewed as one of the applicants ensued and the Board decided that he should not be so interviewed.

The following applicants were interviewed:—

Messrs. Vivian Stephenson, Troja, Allan L. Virtue, Amity Hall, Lottery, Owen A. Lawrence, Cow Park, Gregory Park, Chas. D. V. Henderson, 15 Emerald Road, Kingston, C. A. Boyd, Lucky Hill, D. A. Jones, Gibraltar Estate, Annotto Bay, Clarence Byles, Liffrey Side, Linstead, and M. Meek, Earl's Court Hotel, 18 North St., Kingston.

The Board then elected Messrs. D. A. Jones, Clarence Byles, Chas. D. V. Henderson and Allan L. Virtue to fill the four vacancies.

The Board then interviewed Mr. Eustace Gregory.

The adjournment of the Board was suggested and Mr. McDaniel moved that this Board of Management offers its congratulations to the Hon. Director of Agriculture on his appointment by the Governor as a Nominated Member of the Legislative Council.

This was seconded by Mr. U. Theo. McKay and unanimously carried.

The Board then adjourned for luncheon.

On the resumption there were present:—Hon. T. J. Cawley, in the chair, the Hon. Director of Agriculture, Messrs. McDaniel, McKay, Lewis and Major G. B. Pease, also Messrs. Bacquie and Carrington, Supervisors of Instructors and the Secretary, Glaister Baxter.

The matter of Mr. Gregory's re-employment was discussed and the Director of Agriculture moved:

„That all things being equal, Mr. Gregory be given preference for the next vacancy."

Mr. Walker seconded this and it was carried.

(b) *Provident Scheme.*—The Chairman suggested that the Provident Scheme be deferred until there were more members of the Board present.

This was agreed to.

(c) *Letter from St. Elizabeth Branches Associated re Direct Members for Associated Branches.*—The Secretary read letter from the Secretary of the St. Elizabeth Branches Associated, intimating the desire of that Association to establish a Direct Membership, also the proposal to

charge fees of four shillings a year of which one shilling and six-pence would be contributed to the Parent Body for the Journal.

After discussion the Chairman moved that the Branch be replied to that the Board regrets that at present it does not see its way to adopt the principle on account of the constitution of the Associated Branches.

Mr. Lewis seconded this and it was carried.

(d) *Statement by Secretary.*—The following statement by the Secretary was made:—

6th March, 1934.

To the Board of Management

Gentlemen,

All communications necessary to give effect to the decisions of the Board at their last meeting with the exception of the soliciting of free exhibits for the permanent exhibits of the Royal Empire Society, Montreal, Canada, have been forwarded.

Your Special Committee appointed to enquire into the affairs of the Comfort Hall Branch has arranged that the enquiry take place on the 9th instant.

As directed, suggestions from the Chief Inspector of Produce on the harvesting of citrus were obtained and circulated to Instructors. This has also been published in the February Journal.

(Sgd.) Glaister Baxter,
Secretary.

Statement of Accounts.

(a) *Statement for January.*—The Secretary stated that the Statement of Accounts for January appeared in the Minutes.

(b) *The Statement of Accounts for February* was placed before the meeting as follows:—

Statement of Accounts for February, 1934.

Receipts.	Estimates. £	s.	d.	Total. £	s.	d.
To Subscriptions	150	0	0	153	8	4
Affiliation and Journal Fees	150	0	0	152	6	0
Advertisements in Journal	150	0	0	21	5	0
Sundries: Bank Interest, etc.	20	0	0	22	1	5
Government Grant	8,500	0	0	7,791	13	4
Appropriation from sales Dept. Surplus	1,731	0	0	..		
	£10,701	0	0	£ 8,140	14	1
Balance from 31st March, 1933				2,982	10	1
Prize Holding Competitions				2	19	0
Beekeeping Industry				555	17	10
Show Deposits				10	0	0
Fees for use of Equipment (Shows)				1	1	0
Nethersole Presentation Fund				8	18	0
Refund of Advances				476	3	0
Donations for Local Competitions				1	1	0
Seed Trading Account				3,363	19	11
				1,5543	3	11
Less Expenditure per contra				14,175	17	10
				£1,367	6	1
Cash in hand	£5	17	1			
Cash at Barclay's Bank on Deposit	200	0	0			
Cash at Royal Bank of Canada on Deposit	900	0	0			
Cash at Royal Bank of Canada Current A/c	261	9	0	£1,367	6	1

Expenditure.	Estimates. £	s.	d.	Total. £	s.	d.
By Personal Emoluments—						
Secretary and Office Staff ..	1,847	0	0	1,701	15	9
Instructors and Supervisors ..	7,385	0	0	6,887	4	4
Instructors' Course at Hope ..	125	0	0	122	18	2
Instructors Contingencies and Tools ..	100	0	0	113	0	2
Secretary's Office and Special Travelling	25	0	0	55	0	0
Printing and Stationery	100	0	0	110	11	3
Printing and issuing Journals and Reports	725	0	0	564	15	11
Rent and Rates	58	0	0	56	9	10
Rent of Telephones	15	0	0	17	2	0
Postages and Telegrams	10	0	0	10	11	6
Office Furniture, Repairs	10	0	0	3	14	9
Incidentals	50	0	0	54	12	3
Auditors' Fees	25	0	0	25	0	0
Books for Library	10	0	0	6	13	11
Experiments	205	0	0	32	5	10
Subn. to Horace Plunkett Foundation ..	1	0	0	1	0	0
Show Equipment: Repairs ..	10	0	0	2	3	3
	£10,701	0	0	£9,764	18	11
Prize Holdings Competitions				139	4	9
Refunds of Show Deposits				5	0	0
Beekeeping Industry				587	4	9
Advances to Instructors				546	0	0
Local Competitions				5	2	0
Furniture and Fixtures				9	10	0
Seeds Trading Account				3,118	17	5
				£14,175	17	10

(Sgd.) Glaister Baxter,
Secretary and Treasurer.

(Sgd.) Donald McDonald,
Accountant.

Some questions were asked by members of the Board.

The Secretary was instructed by the Chairman to prepare a statement of debtors for the April meeting.

Instructors.—

(a) *Report of February meeting of Committee.*—Report of the February meeting of the Instructors Committee was submitted as follows:—

March 2nd, 1934.

To the Board of Management:

Gentlemen:

Your Instructors Committee begs to recommend for your adoption the following matters which were considered at their meeting on February 7th, 1934 and which have not already been placed before the Board:

Letter from Instructor Coke, suggesting that provision be made for Instructors taking courses at the Imperial College of Tropical Agriculture was referred to a small Committee consisting of the First Vice-President and the Director of Agriculture, along with the Secretary, to go into the matter and to report later.

Another letter from Instructor Coke, suggesting "Floating Branches," with the Instructors acting temporarily as Itinerant Secretaries, which would increase the membership of the Society, was also considered and this was referred to a small Committee to be appointed by the Board for planning instructoral work.

Letter from Instructor Martin, asking permission to apply to the Director of Agriculture for the Government position of Instructor, was considered and the Secretary was instructed to advise him that there were now no vacancies in that Department.

Instructor Atkinson was granted leave for the month of March.

Letter from Instructor Wates, pointing out that he would be getting no pension, was considered. The Secretary was instructed to advise him that the Committee understood that he was under consideration for a gratuity according to his years of service.

Yours very truly,
(Sgd.) Glaister Baxter,
Secretary.

Mr. McKay moved, seconded by Mr. Barnes, that the report be received and adopted.

This was carried.

Messrs. Barton and Watson joined the meeting.

Communications.—

(a) *Correspondence re Pension for Assistant Instructor W. Z. Buckley.*—The Secretary read correspondence between the Hon. R. Ehrenstein, the Hon. the Colonial Secretary and the First-Vice-President with reference to a pension for Assistant Instructor Buckley.

After discussion the Secretary was instructed to reply to Mr. Ehrenstein that the matter would be dealt with through the Provident Scheme.

(b) *Request from Pedro Branch for Secretary to attend Annual Meeting on* 24.4.34, *and* (c) *Request from Snowdon Branch for visit from* 1*st Vice-President and Secretary to Meeting on* 13*th March.*—Request from the Pedro Branch as also request from the Snowdon Branch for visits from the First Vice-President and the Secretary were read.

The First Vice-President stated that due to his duties in the Legislative Council he regretted he could not accept the invitation, and the Secretary pointed out for the information of Mr. H. E. Lewis that if the invitation was repeated after the Session of the Legislative Council it would be more convenient for him to attend with the First Vice-President.

Diseases of Plant and Animals: Insect Pests.—

(a) *Panama Disease of Bananas—Monthly Report.*—The Secretary placed on the table the report on the Panama Disease of Bananas for the month of January, 1934.

The Director of Agriculture pointed out the increase of the incidence of the disease due to the flood rains, and pointed out that the deforested condition of the hillside areas contributed through the floods to a further spread of the disease and informed the Board that careful soil surveys were being made over areas with a view of further study of the disease.

Mr. Walker brought to the attention of the Board the necessity for relieving the quarantine from certain areas in St. Mary that could be planted in canes.

Mr. Cover joined the meeting.

Forestry.—

(a) *Tree Planting in St. Andrew—Report from Instructor Hanson.*—The Secretary placed before the Board the report on Tree Planting sent in by Instructor Hanson which had been circulated to the Board.

He was directed to forward same to His Excellency the Governor.

Industries.—

(a) *Beekeeping—(i) Instructor's Monthly Report.*—The Secretary stated that the Bee Industry Instructor's monthly report was placed before the Bee Industry Committee that morning.

(ii) *Letter from Mr. R. A. Scott re services rendered.*—Letter from Mr. R. A. Scott, pointing out valuable services rendered to him as a bee-keeper by the Bee Industry Instructor, was read.

The Secretary was instructed to thank Mr. Scott for his letter.

(b) *Citrus—Letter from Director of Agriculture.*—Letter from the Director of Agriculture quoting the action of a special meeting

held at Hope on the subject of citrus handling was read. The letter asked that the Society consider the advisability of stocking equipment for the harvesting of citrus for the benefit of the public.

The Board decided that there was no necessity for the Society to stock these implements as, as soon as there was a demand the mercantile community would be able to sell them at relatively cheap rates.

(c) *Bombay Mango: Letter from Supervisor Carrington*—The Board then considered a letter from Supervisor Carrington with reference to a Bombay Mango Plot at Ehren, the property of Mr. Louis Logan in Mid-Clarendon.

After discussion the matter was referred to the Committee for planning instructoral work.

Shows.—

(a) *Dry Harbour Mtns.*—A request from the Dry Harbour Mountains Show Committee for the postponement of their Show to Easter Monday 1935, was approved.

(b) *Gilnock, Santa Cruz.*—An application for a show fixture for January, 1st 1935 from the St. Elizabeth Branches Associated accompanied by a deposit of Five Pounds, was approved.

Branches, Resolutions, etc.—

(a) *Mile Gully re road.*—Resolution from the Mile Gully Branch re new road direct to Comfort Hall and Balaclava from Mile Gully was considered.

The Secretary was directed to forward same to the Hon. Colonial Secretary.

New Members.—

On the motion of the Hon. T. J. Cawley, seconded by Mr. Walker, the following were elected members of the Society:—

Matthew Scott, Port Maria.
William Grant, 32 Victoria Avenue, Kingston.
Miss A. M. Young, Avondale, Sav.-la-Mar.
E. D. Dawson, Clydesdale, Alexandria P.O.
L. A. Walker, Bowden.
E. Ernest Gray, Hope Bay.
C. Hope Panton, "Westerham," Mannings Hill Road, Constant Spring.
D. P. Crooks, Haughton Court, Lucea.
C. N. Berry, Belvedere, Morant Bay.
Mrs. A. W. Alcock, Bath, Sav.-laMar.

Other Business.—

(a) *Letter from Director of Agriculture re contributions from his Staff for Journal.*—The Secretary stated that he had a letter from the Hon. Director of Agriculture, advising of arrangements for articles for the Journal for the coming financial year from Officers of the Department of Agriculture and he brought it specially to the attention of the Board feeling that they would like to thank the Director of Agriculture for this.

Mr. Cawley then moved that the Board's thanks be conveyed to the Director of Agriculture for the valuable contributions to the Journal from his Department and his interest in the Journal.

This was seconded by Mr. McDaniel and unanimously carried.

(b) *Letter from Mr. J. H. Blackwood re Instructoral work.*—The

Secretary laid on the table letter addressed to the Board from Mr. J. H. Blackwood on the subject of re-organization of the Instructoral work, and stated that the letter had been circulated among members of the Board.

The Secretary was directed to thank Mr. Blackwood for his communication and to assure him that action was now being taken by the Board in the direction outlined by him.

(c) *Letter from C.S.O. re appointment of Mr. Carrington to Department of Agriculture.*—Letter No. 6599/31 of date 17th February, 1934, from the Hon. the Colonial Secretary on the subject of the appointment of Mr. Carrington to the Department of Science and Agriculture was read as also letter from Mr. L. L. Carrington, accepting the appointment.

The Board noted the information.

(d) *Application from Miss Hilton for extension of leave.*—Application from Miss Hilton for extension of leave (one month) due to further illness, was granted on full pay.

The Secretary was directed by the Board to convey their sympathy to her in her illness and also on account of the recent death of her brother.

(e) *Letter from Upper St. Johns Branch re Assistant Instructor Maxwell.*—Letter from the Upper St. Johns Branch, requesting the Board to reconsider their action with regard to their decision not to confirm the temporary appointment of Assistant Instructor Maxwell, was read.

The Secretary was instructed to reply that the matter had already been fully considered and the Board feels that it would not be in the interest of the Society to reconsider their decision.

(f) *Report from Secretary re travelling for February.*—The Secretary read his report on travelling for the month for the information of the Board.

This was noted.

The Secretary placed before the Board a report on his survey of the Yallahs area and suggestions for establishment of new crops for that district, and asked that his action with regard to Instructor McLaren being instructed to give special attention to the area be endorsed. This was agreed to and after discussion it was decided to pass the report to the Committee appointed to plan Instructoral work for further action.

(g) *Invitation from Rose Hall Branch to Annual Meeting on 27th April.*—Letter from the Secretary of the Rose Hall Branch, inviting the members of the Board and the Secretary to their annual meeting fixed for the 27th April was read.

The Secretary was directed to thank the Branch for their kind invitation, and to express the regret of the Board at their inability to attend the meeting.

(h) *Resolution from Mile Gully re Mail Service.*—Resolution from the Mile Gully Branch asking for quicker transportation of mails from Mile Gully to Devon, Harry Watch and Maidstone was placed before the meeting.

The Secretary was instructed to forward the resolution to the Postmaster for Jamaica.

(i) *Resolution from Bohemia Branch re Branch of Government Savings Bank.*—Resolution from the Bohemia Branch was submitted asking for the establishment of a Branch of the Government Savings Bank at Lorimers Post Office.

The Secretary was directed to forward same to the Manager of the Government Savings Bank.

Provident Scheme.—

The Secretary submitted the report of the Special Committee appointed for constructing a Provident Scheme for the male members of the Staff of the Society as under:—and stated that copies had been sent to individual members of the Board.

6th February, 1934.

To the Board of Management:

Gentlemen,

Your Committee appointed to consider the Provident Scheme for the male staff of the Society has done so and beg to recommend that the scheme outlined by the Secretary which would permit of (a) Insurance on the life of each member of the staff amounting to £1,000, (b) A Pension on retirement at 60 years of age of £10 per month, (c) A Definite Payment of Pensions for 10 years dead or alive, (d) Payment of a Pension of £10 per month for life, be adopted.

This scheme would require annually a premium of approximately £1,300, payment which is to be contributed equally by the Government and the employee concerned.

The scheme was submitted to the staff on the 10th January last and they acquiesced to the arrangement.

The matter has been informally discussed with the Hon. Colonial Secretary and he has asked that the proposition be formally put up to him as soon as the Board approves.

Due to the fact of the high premia on Insurance for Instructors over 49, it has been found impracticable to include the following members of the staff in the scheme:—

H. H. Coote, aged	51
C. C. Hastings, aged	55
P. St. L. Bacquie, aged ..	57
A. P. Hanson, aged	59
W. Z. Buckley, aged ..	60
H. W. Lynch, aged	61
J. A. Banks, aged	64

It is, however, suggested that the Government be approached for specially considering these men with a view to providing a small pension for each on retirement.

For ages over 40 the premia are also very heavy and it is suggested to make special provision which would permit employees over 40 electing not to subscribe an amount over £42 per year as their portion of the subscription, accepting hereby a lowered pro rata pension.

It is proposed that the benefits accruing from Policies in case of death of the employee either before the pensionable age or during the ten years following retirement which is the period of guaranteed pensions dead or alive should benefit the estate, heirs or assigns of the employee only to the pro rata extent of his contributions and that the balance of this amount be used to create a fund which would be invested the income of which would progressively reduce and eventually displace the contribution of Government. By this means at some future date the scheme would cease to become a charge on Government.

Your Committees recommends that, as enquiries of the various Insurance Companies were simply for a pension scheme and each one of these Companies submitted something somewhat different, the scheme now found acceptable be submitted to each of them that are interested in this class of business so as to enable them to tender premium rates for the further consideration of the Board.

Attached is a Memorandum from the Secretary to the Special Committee dealing with the Provident Scheme, outlining the various submissions from the different Companies.

Yours very truly,
(Sgd.) GLAISTER BAXTER,
Secretary of Committee.

Mr. Walker presented two memoranda to the Board and asked permission to have them read by the Secretary.

Permission was given and they were read.

Mr. Walker said that whilst he supported the Provident Scheme he felt that the premiums would be unduly burdensome on account of the small salaries of the Instructors and that it was the duty of the Government to provide them with a pension scheme no less than that of teachers and policemen.

There was considerable discussion after which Mr. McKay moved that the scheme be adopted to be forwarded to the Government with extracts of the remarks made at the meeting of the Board that day.

The Hon. Mr. Cawley seconded the motion which was unanimously carried..

Mr. Cover then moved that an electric ceiling fan be installed in the Board Room.

This was seconded by the Director of Agriculture and unanimously carried.

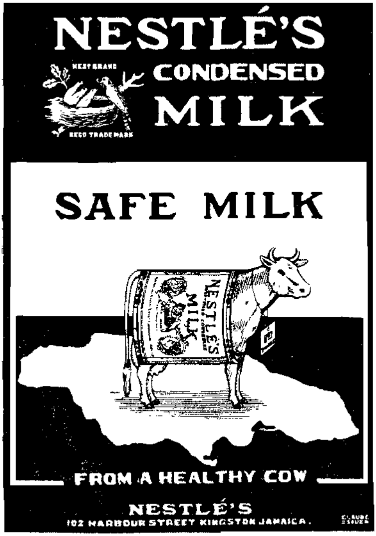
The Board then adjourned to Wednesday the 4th April, 1934. at 11.30 a.m.

OBITUARY.

This Journal records with regret the death of the late Hon. F. C. Wells-Durrant, late Attorney General for Jamaica and Chairman of the Advisory Committee under the Agricultural Produce Law up to the time of his death.

It is our special sphere to comment on the excellent work done by the Board which to a great extent was the result of his legal ability and devotion to duty.

Undoubtedly his career in Jamaica has been one of service to the country and we tender unstintingly our deep sympathy to his family in their bereavement.



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We take pleasure in drawing to the attention of our banana farmers the Entomological Circular No. 14, written by Mr. W. H. Edwards, D,I.C, F.E.S. Government Entomologist, and issued by the Department of Science and Agriculture.

This circular brings the subject of insect pests of the banana in the Colony right up to date and is a reproduction of Mr. Edwards' lecture delivered on the occasion of the Agricultural Open Week held at Hope Hope by the Department of Science and Agriculture in July, 1933.

The circular is excellently illustrated and should be obtained by everyone interested in bananas and kept as a text book on the subject.

As however the edition is a comparatively limited one we have obtained the kind permission of the Department of Science and Agriculture to reproduce same in our Journal for the benefit of our large circle of readers.

EDITOR.

A LECTURE ON PESTS OF BANANA IN JAMAICA.

By. W. H. EDWARDS, D.I.C., F.E.S.,
Government Entomologist, Jamaica.

Banana planters in Jamaica are very fortunate in having but very few pests attacking their crops. From that point of view they have a marked advantage over the growers of the crop in other countries.

We have in fact, but one species of insect which can be considered as a pest, it is the Weevil Borer (*Cosmopolites sordidus, Germ.*) The others only very occasionally make their presence noticeable and the total damage they cause can on the whole be considered insignificant.

So as to clear the ground I shall, however, mention these latter to you before we discuss in detail the only enemy against which I shall ask you to direct all your energies.

THE SCALE INSECT—*Chrysomphalus personatus* (*Comst*).

As in other 'armoured' scales, the body of this insect is covered by a hard shield formed by cast skins and by secretions. The insect appears on the plant as small circular convex pustules of a dark grey colour with a central shiny black spot.

The impermeable scales covering the insects situated underneath protect them and render control by means of solid or liquid insecticides difficult. As however, I have never found them on bananas in sufficient numbers to demand action we shall not discuss now how the pest could be controlled.

THE APHID—*Pentalonia nigronervosa* (*Coq.*)

The central leaves of young shoots are occasionally found infested with plant lice. Their colonies, however, soon atacked by lady bird beetles and by fungus diseases, rapidly disappear without the need of human intervention.

RED SPIDERS.

A minute spinning mite or red spider, *Tetranychus sp.*, sometimes causes localised brown flecking on banana leaves but from the economic point of view they are unimportant.

SCARRING OF FRUITS.

During a period of protracted drought it is sometimes found that the upper cell layers of the skin of fruits become eaten in spots. Though

such lesions are always superficial and do not affect the flavour or keeping quality of the fruit, the scars which disfigure some fingers render affected bunches unsaleable.

Several insects are responsible for such damage but the more common ones are locusts and grasshoppers. Slugs and snails during dry seasons also do similar damage in localities where bananas are heavily mulched.

Locusts.

When through lack of rain during long periods the vegetation on pastures is eaten close to the ground over large areas, banana fields situated along grass lands suffer in the manner just described by the attack of locusts and grasshoppers. The species more commonly found being *Acridium inscripta,* Walk. As losses are slight and only very occasionally sustained, application of remedial measures against those insects cannot be undertaken as an economic proposition.

Slugs and Snails.

During dry spells of weather similar damage is done by slugs and by snails in those localities where bananas are not irrigated but heavily mulched.

In such localities there are generally between the rows of plants or around the fields stacks of loose stones which give ideal shelter to these molluscs, the abundance of plant detritus on the ground allows them to breed in abundance all the year round.

When drought rapidly desiccates their staple food, they start to chew the living banana tissues.

Slugs can be easily destroyed in large numbers by placing over the ground traps made with pieces of shingles or banana stems under which they congregate and can be collected by inspecting the traps every morning.

Nematodes (or Eel Worms).

Those minute parasites live inside the tissues of plants causing gall-like swellings on the infested parts. The normal functioning of infested roots can thereby become so hindered that when the parasite is abundant infested plants become stunted and gradually die.

The first symptoms noticed are the yellowing of the older leaves and their premature death, the stunting of the younger leaves and of the whole plant which only produces dwarfed bunches.

On examining the roots, malformations are observed in which minute glassy flask-shaped organisms are seen in numbers, these are the female worms distended with eggs. The tissues of older galls are then frequently found dead and decaying.

The damage done by these worms can be alleviated by improving the texture of the soil; plots found infested should not however be replanted in bananas for several years.

The Weevil Borers.

There are, in Jamaica, two species of weevils which breed in the tissues of banana plants. One of them, the Black Weevil Borer: *Cosmopolites sordidus,* Germ., is a serious pest of bananas, which if not systematicaly controlled may cause very serious depredation. The other species, the Brown Weevil Borer, only breeds in the dead tissues of the plant and causes no actual damage.

The fact that both these insects are found in the tissues of banana plants, and the similarity in size and general appearance of the adults

and larvae of those insects, lead to frequent confusion being made by planters not versed in entomological matters.

To allow you to differentiate between those two insects I shall say a few words about the Brown Weevil though that insect is not a pest of bananas but one of sugar cane.

THE BROWN WEEVIL BORER: *Metamasius sericeus*, Oliv.

The Brown Weevil, like the Black Borer, belongs to the family Curculionidæ. The members of that large family are easily distinguished by the characteristic shape of the forehead which in all weevils is elongated in the form of a snout at the extermity of which is the mouth, provided with powerful biting jaws. See Plate I, Fig. E.

Whilst the Banana Borer is uniformly black in colonr the adults of *Metamasius sericeus* are dark brown with darker markings on the thorax and wing covers.

Whilst the Black Borer is, as a rule, found on the tissues of the lower part of the pseudo-stem or in the corms of banana plants, the Brown Borer when it lives on banana, confines its activities chiefly to the stems from which the bunches have been cut.

When Brown Borers are found in numbers in banana fields, it should be borne in mind that though they do not themselves cause damage, their presence is an indication that field sanitation is not adequate as most of the plant detritus in which they live might also serve as breeding places for the Black Borers.

THE BANANA WEEVIL BORER, *Cosmopolites sordidus*, Germar.

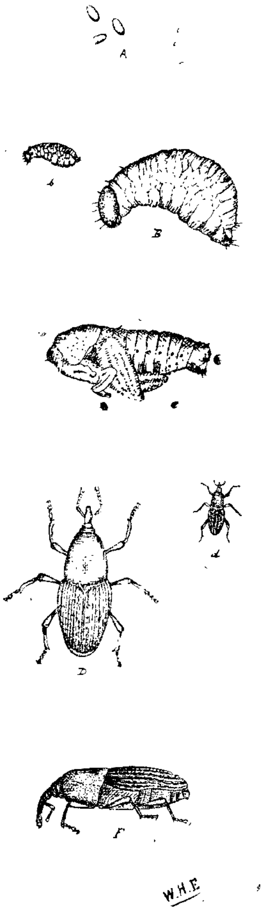
This insect, which was originally described by Germar in 1824, has been known as a major pest of all varieties of bananas for many years and in most countries where banana is grown. It has been found in Ceylon, India, China, the Malay Peninsula, the Philippine Islands, Java, New Guinea, the Bismark Islands, the Solomon Island, the New Hebrides, Fiji, Australia, Tonga, Samoa, Cook Island, Martinique, Porto Rico, Florida, Haiti, Bermuda, Costa Rica, Brazil, Madeira, Guinea, Uganda, the Belgian Congo, Mauritius, Madagascar and in the Seychelle Islands, in fact is is widely distributed thoughout the banana growing countries of the world.

Though it is not possible to determine with certainty when the pest was introduced in Jamaica, there are good reasons to believe that it was imported very many years ago, probably with the first banana plants which were introduced. Its presence has now been recorded in most parishes.

The transportation of this pest over most parts of the Island can, unfortunately, be directly ascribed to human agency, being the result of the deplorable lack of attention given in the past, and unfortunately even now-a-days to the inspection of planting material which have been frequently transported from infested fields to fields where the pest did not yet exist.

In 1916-17, the depredations caused by that pest especially in the parishes of St. Mary, St. Catherine and St. Andrew, caused considerable alarm amongst banana growers. It has since been combatted with varying degrees of success over the infested areas. Under complete economic control on the estates where a high standard of cultivation is practised, it is still very abundant where bananas are not grown intensively, as little or nothting is done under such conditions to combat the pest.

PLATE 1.



There has been, since the beginning of this year (1933), an increase of the borer population in several parts of the Island, due to a combination of causes of which the following are the most important:—

1. After the last hurricane, which in many districts blew down a very large number of banana trees or battered them so much that they had to be cut down, sufficient attention was not, and in many cases for financial reasons, could not be given to usual cultural operations and chiefly to field sanitation.

The large amount of plant tissues thus left on the ground has harboured and afforded ideal breeding places for the pest to multiply in abundance. See 6.

2. The hurricane was followed by a protracted period of drought which has not only increased the effects of infestation on plants of reduced vitality, but also created during the winter months extremely favourable environmental conditions for the multiplication of the pest.

3. In localities where the incidence of Panama Disease has been high, fields have now been abandoned with banana stools left standing amongst rank vegetation. The borer has found under such conditions ideal breeding grounds over large areas.

4. The practice of renting lands to tenants and of subsequently giving them notice to quit twelve months in advance during which period no cultivation is done, has contributed to increase the degree of infestation in several localities. As such fields, when taken over from the tenants are generally replanted in bananas without any measures being previously applied to eradicate the pest, and further as the sets for planting are frequently taken from the old infested stools which have been left on the field, it is not to be wondered that heavy losses are sustained through this cause.

Though for the reasons stated above, the Borer has lately been on the increase in certain districts, the situation with regards to this pest cannot as a whole be judged as being critical.

On most banana lands where a relatively high standard of cultivation is practised and wherever reasonable attention is given to field sanitation, the borer does not preceptibly affect fruit production.

I do not desire in the least to minimise the importance of the pest, but on the contrary, I would be glad to see planters exaggerate its status if this would induce all of them to give serious attention to the application of measures of control. I do not however, think that pessimism is '*de mise*' when it is expressed with the sole object of obtaining material intervention from the Government while elementary precautions are neglected by those directly interested.

It should therefore, and from the outset, be realized by every one that the position with regard to the Banana Borer in this island does, not necessitate recourse to extraordinary measures for its control. All over the world crops are attacked by insect pests as well as by diseases, and their control is part of normal agricultural practices. The Government cannot be expected to undertake the application of measures aimed at eradicating long established pests or diseases on individual properties.

One sometimes hears owners of large properties say that it is useless to apply measures of control so long as the peasant farmers do nothing to combat the pest and that compulsory treatment of infested fields should be rigorously enforced.

There is no doubt that the state of affairs as regards the pest on certain properties, small and large, sometimes constitutes a menace to neighbouring plantations where the pest is either controlled or does not yet

exist. I have, however, to say that with few exceptions I have alwa found that those who clamoured more loudly for the enforcement compulsory treatment on other people's properties could not be cit as examples for the field hygiene on their own lands and that th reasoning often appeared to me an excuse for their own negligence.

My opinion on this question of compulsory treatment may chan and this will primarily depend on the response that my efforts and th of the Agricultural Instructors and Plant Disease Insepctors will recei from the planting community.

I still believe that when dealing with agricultural pests of the stat and having the habits of the Banana Borer, the problem, pending t possible establishment of biological control, should be tackled l improving the agricultural education of the planters with regard general cultivation and pest control by field hygiene, rather than by t strict application of punitive legislation.

The Agricultural Instructors are expected to form the necessary li between the technical officers of the Department of Agriculture a the peasant farmers who do not read published information or atte lectures; your role in connection with the campaign against the Bo is therefore apparent.

I hope that the interest of a constructive nature which some of y have always shown in this regard will become keener, that it will l shared by all, and that the very encouraging results already achiev by those who have been carrying a fruitful missionary work in th district will serve as examples to the others. I shall therefore a you not to think too much about devising new methods of atta against the pest but to apply all your energies in convincing others the necessity of applying those methods which have given ample pro of their efficiency, if they apply the methods of control we will descri later with a reasonable degree of perseverance they will soon thank y for your insistence.

Nature and amount of Injury.

The Borer when left to multiply unhampered, may cause hea financial losses to banana growers in the following ways:

1. When infested fields are replanted, the insects congregating o the newly planted suckers cause these to die before they ha developed sufficiently strong radicular systems to allow t young plants to build new tissues faster than those destroye by the grubs.

Young suckers when so attacked at first show a stunted, weed appearance, the central roll of unopened leaves then wither and the who plant dies.

2. In the case of older stools, the larvæ, when abundant, destroy considerable amount of tissue by tunnelling into the corm. The vitality of heavily infested plants can then be reduce to such an extent that only poor bunches of fruit are produce
3. Apart from their effect in reducing the size of the bunches an the marketing qualities of the fruit, the insects, when abundan delay the period taken by the plant to produce a bunch. A a result, a lesser number of bunches is produced every yea per given area of infested lands.
4. By interfering with the normal development of the plants, th pest when left unchecked during long periods also materiall reduces the economic life of plantations.

The amount of damage caused by the pest varies not only with th

intensity of infestation but also, and to a very great extent, according to the general state of health of the plants themselves.

Where the soil is fertile and the atmospheric conditions favourable to luxuriant vegetation, attacked plants maintain themselves well against infestations that would ruin plantations not so favourably situated.

As a rule, the effects of infestation are particularly accentuated during protracted periods of dry weather as unfortunately is periodically experienced in certain parts of this island. Where the fields cannot be irrigated the losses are then particularly heavy.

The long period of drought which has prevailed during the early part of this year has thus in combination with the other factors enumerated previously contributed to bring the Borer to the attention of several planters who previously had not paid attention to its presence in their plantations.

I am certain that you also realize that any other condition that checks the growth of the plant, such as a deficiency of plant food and particularly a low standard of cultivation, considerably accentuates the effects of Borer infestation.

Though I desire to call your attention to the importance of that pest, I must say that reports of damages attributed to its action are sometimes exaggerated by unsuccessful or pessimistic planters.

When the pests exist in regions where plantations are poor, one is too frequently inclined to attribute the poor growth entirely or chiefly to the Borer and to overlook the other causes that are responsible for the state of affairs.

When visiting areas where bananas do not thrive well one should not immediately conclude when one finds the Borer that it is entirely or in cases of very slight infestation, partially responsible for the poor growth of the plants.

I know many plantations where the borer does not exist but where the poor growth of the plants would at first sight be ascribed to the borer if the fields were situated in infested regions.

We must control the Borer by every means but we should not make it our '*bete noire*' and ascribe all evils to its action, this would lead us to overlook other factors which it may be very desirable to alter.

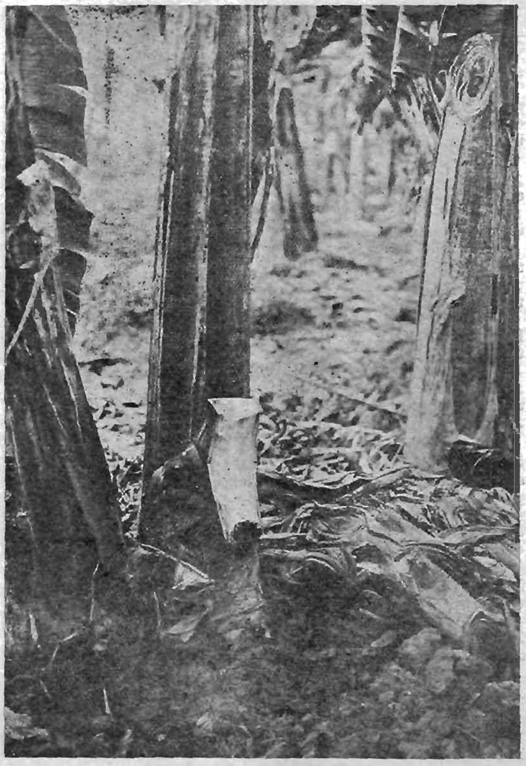
You must have heard it said by a few people who are probably always inclined to express extremist views, that the Borer is responsible for as much damage as Panama Disease. It is for obvious reasons unreasonable to compare the damage done at present or the potential destructive power of such an insect with Panama Disease.

Under the very varied conditions under which banana is cultivated in this island, it is practically impossible to evaluate with any reasonable degree of accuracy the actual monetary loss caused to the colony by the borer.

Even with a uniform degree of infestation on adjacent properties and with soil and climatic conditions taken as equal, the losses caused by the Borer vary to a considerable extent according to the type of cultivation practised on individual estates.

As the intensity and duration of the periods of drought which periodically affect various parts or the whole of this island vary considerably during succeeding years, and as the borer belts are as a rule lands which are not irrigated, it is also very difficult to estimate with accuracy the yearly losses of individual properties.

As however, it is not essential to figure with exactitude the total



6.

'Repairing' a field after stormy winds had blown down bearing trees.

Note (1) The mass of debris which has been massed around the stools. This affords ideal breeding material for the pest.

(2) How the crowns and corms of the plants have been left exposed.

(3) In the centre of the lower part of the picture, below the immature cut bunch, the hole left by the removal of a sucker; bare cut tissues of the corm have thus been left exposed to the attack of the pest.

amount of damage done by the pest in order to undertake its control, we shall pass to points of more direct importance.

When dealing with insect pests of the description of the Banana Borer, planters unfortunately generally pass through four psychological phases before they take adequate action to destroy the pest.

At first when the pest is not numerous, nothing is done to check its increase or spread in the plantations, and the menace its presence constitutes is generally overlooked or underestimated.

When, subsequently, the infestation having increased, damage becomes appreciable, it is as a rule claimed that an outbreak has suddenly occurred on the property and that for the ultimate welfare of the entire community the Government should undertake the eradication of the pest which menaces the whole banana industry.

It is thus forgotten that the pest was in existence in this island before the industry was developed; that it is widespread over the island but well under control wherever reasonable attention is given to its control.

After a period of agitation and hesitation the planters who make the first acquaintance with the pest finally attempt to apply control measures. It is unfortunate that at that early stage they too often use methods of treatment with chemicals or decoctions of plants or other simpler little tricks which are at first claimed by those who have devised them to give extraordinarily good results. Those who have not been endowed with an inventive imagination, listen to the advice of their disinterested and brainy neighbours or to those 'professors' who periodically find cures for Panama Disease and other difficult problems.

Those fanciful methods of control, if not directly harmful in themselves unfortunately misdirect energies which if applied in the right direction would yield immediate and beneficial results.

After that third stage of erratic efforts at control the value of field sanitation and of judicious methods of control devised with an understanding of the biology of the pest becomes realized and the application of these methods rapidly rids his fields of the pest.

Unfortunately once this is achieved the insect becomes so forgotten that after several years the successor of the planter described above becomes in his turn acquainted with it, going through the same experiences as his elders, he then generally starts his 'banana planters' life 'cycle' by going in his turn through the stages just enumerated.

Hoping that all of you have now reached the mature or perfect stage, we shall now study the habits of the pest, and discuss how it should be controlled.

Life History and Habits.

The life cycle of the Borer comprises four stages (1) the egg, (2) the larval period during which the insect is a legless creamy white grub, (3) the pupa (or chrysalis) during which stage the grub changes into a beetle, and (4) the adult or weevil stage during which the insect mates and lays the eggs which start another generation.

To lay its eggs the weevil eats out little hollows in the tissues of the banana plant near the ground level; in each cavity it lays a single egg. The egg, about one-twelfth of an inch long are oval in shape and white in colour. Through the subsequent shrivelling of the wounded tissues of the plant, those eggs become completely enclosed in sealed chambers.

On account of the situation in which it is laid, of its small size and of its colour which harmonizes with that of the tissues in which it is embedded, the egg is very rarely found in the field.

When part of the corm is above ground level oviposition is in preference effected at the coronet of the corm. Eggs are also sometimes deposited in cracks at the base of the pseudo stem, on decaying leaf bases on any fairly large piece of old stems lying on the ground; they are also occasionally found in the insects' old tunnels.

The larvæ emerge from the eggs in from five to seven days. Immediately after hatching the small larva begins to eat its way into the internal tissues of the bulb. At first these tunnels are very small, but as the grub develops the borings gradually widen until they are about the diameter of a lead pencil.

As a general rule the tunnels are made a few inches at most above ground level but if the plants which have borne fruit are left standing, it happens that the insect travels well up into the central parts sometimes along its whole length.

It is the grub that does all the damage to the plant. Being voracious feeders, each one destroys an enormous quantity of tissues in proportion to its weight.

After a period of growth which takes from fifteen to twenty-one days, the larvæ are full grown, they then measure slightly over half an inch in length.

The larva is a stout fleshy legless grub, creamy white in colour, the posterior end of the body which is slightly curved is much thicker than the front. The head which is reddish brown in colour is prominent. See Plate I., Fig. B.

The whole of the larval period is passed within the tissues of the plant, the tunnels being sometimes bored in the central part of the corms and sometimes at the periphery. By thus advancing continually the larvae destroy a large quantity of tissue and sever many sap vessels and root-origins.

As the grub moves forward it leaves waste fibres and excretions which practically choke the tunnel behind it. The insect thus becoming isolated from the outside world is out of reach of insecticides. Some investigators even attribute to this fact the insignificant part played by the known natural enemies of that insect in checking its increase.

The length of the larval period varies considerably according to climatic conditions; it has been known to vary from 15 to over 100 days.

When the grub is about to complete its development, it moves towards the outer surface of the bulb, when it reaches a position where there is only a thin layer of the plant's tissue between itself and the soil, it stops to advance, widens slightly the end of its tunnel, then ceases to feed and to move and changes into a pupa (or chrysalis). See Plate I. Fig. C. When it lives in the pseudo stem the larva remain much deeper in the tissues to pupate than when it is in the bulb below ground.

The pupal period during which, as you know, the insect from a larva becomes transformed into the weevil borer, takes from five to eight days. At the end of that period the body of the weevil which emerges is still soft and not black but bright reddish brown. After several days spent in the pupal chamber its integument hardens and becomes darker. It then eats its way through the thin wall of corm tissue left and enters the soil in which it will now spend the major part of its life.

The adult weevil is a very sluggish insect, it is more active during night time than during day time when it remains hidden in the soil or underneath plant refuse lying on the ground.

Under normal conditions they may live as long as two years; under adverse conditions such as submergence in water when lands are flooded or when deprived of food they exhibit remarkable powers of endurance and vitality.

Contrarily to what planters generally believe by making wrong analogies with other agricultural insect pests which have different *habits and biological peculiarities, the Banana Borer is not one of those* pests which suddenly burst into plantations and effect much damage in a short time.

The Borer does not, like most other agricultural pests, feed on several varieties of plants which either cultivated or growing spontaneously, harbour the pest and render the application of control measures difficult and complicated.

The Borer lives only on bananas and plantains, it has relatively sedentary habits, and in comparison with other insects it is not very prolific.

When the Borer population of a district or of a particular field is observed to be abnormally high, this should not therefore be ascribed to sudden outbreaks nor to mass migration from distant foci of infestation which are beyond one's power of control. An abundance of the pest in a field is the result of a cumulative increase of the insect population in the field itself or in the immediate vicinity during several generations and this indicates that measures of control have been inadequate during realtively long periods and that field hygiene has not been judiciously practised.

(To be continued.)

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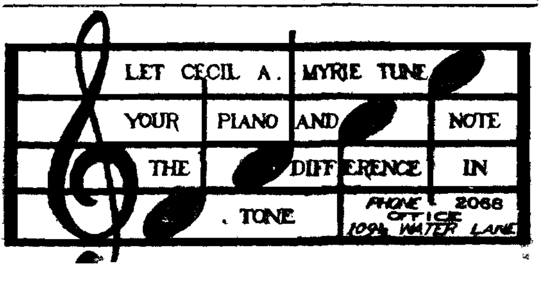

EDITORIAL COMMENTS.

Works of convenience vs Reproductive works.

We are of course human and being so cannot but feel gratified at recent pronouncements of prominent leaders in our community, including in this definition Elected Members, Nominated Members of the Legislative Council, Members of the Government and His Excellency the Acting Governor himself on the subject of the necessity of development for the country on reproductive lines.

In this connection, we voiced this necessity in the Editorial Comments of our October, 1933 issue, and again in the March issue of this Journal. We offer no apologies in inviting our readers to refer to these.

As a means of further impressing on the minds of readers the trend of responsible thought in the Colony, we will quote a few extracts from speeches made recently by prominent and responsible public men.

The Hon. T. J. Cawley our First Vice-President speaking in the Legislative Council on the 11th April, said among other things, that the Government should decide on a policy of development and other works that will tend to develop the agricultural resources of the Colony. The Hon. Mr. J. A. G. Smith on the same day very excellently expressed what we think is a prime necessity for our prosperity, and we quote his words below:—

"My view is that we do not merely need works of convenience and improvement, but works of reproduction and development; unless we have that we will never increase the capacity of the people as a whole to earn money and so be in a position to pay their taxes." Here we have a very illuminating definition of the difference between works of improvement and convenience and works of reproduction and development. We stressed this very definition in our October Editorial which was headed "Balanced Development," and we hold that if expenditure on improvements and convenience outstrip that of development and reproduction it will definitely make for an unbalanced development, increased rates of taxation, which except the incomes of the people of the Colony can be increased, will create hardships and suffering.

Sir William Morrison at the same session of the Legislative Council made some very encouraging remarks on the same lines.

His Excellency the Acting Governor in his following speech clearly intimated that this viewpoint was not inconsistent with that held by him and so we hope that the stage is well set for progressive steps in the interest of the Colony.

We should like our readers to feel as we do that any comprehensive programme of development with its goal the increase of opportunities for agricultural expansion and increased income earning capacity for the taxpayers can only be, for this Colony an agricultural development, and we also wish that the difference between works of improvement and convenience and works of reproduction and development so ably elucidated by the Hon. Mr. Smith should be very clearly kept in mind.

It might be useful if the Development Committee whose is the important duty of framing these policies would create special subcommittees for considering these two distinct aspects of the progress of our country.

Crop improvement of the Banana.

The banana industry of the Colony would undoubtedly benefit if more care was displayed in the choice of soils on which the crop is to be grown.

The count bunch ratio of the entire banana output of Jamaica's averages in normal years around 60%. (During storm-stricken years the count bunch ratio goes as low as 50% and for shorter periods even lower.) As is well known, considerable areas produce large fruit grading 80% and better; it is therefore obvious that for our aggregate production to have a count bunch ratio of 60% a very large proportion of our banana acreage must be producing 50% grades, and lower which means that sevens predominate in the crops.

Our experience of these low grading lands, is that they are unprofitable to their owners, and more that this low grading fruit is usually of light weight. These aspects of the matter very adversely affect the reputation and prices of our entire production. We are writing on this matter as anyone travelling around the country must be struck with the enormous waste of effort, capital and land that takes place by this persistency in trying to grow a crop on soils that are unsuitable. These assets if they can be successfully diverted into other channels would considerably benefit the remainder of our banana production and could produce other crops of proper quality and profitable possibilities to the advantage of the farmers of the country.

In other cases we find the low count bunch ratio resulting from another reason. Here we have bananas planted on lands that are suitable from the standpoint of textures and rainfall or irrigation, but that these lands have been cropped for several decades continuously and without rotation. Here the problem seems to be that of refreshing the lands either by carefully chosen rotational crops or by the application of suitable fertilizers. Possibly the combination of both would prove the better solution to this problem.

Banana farmers must realise that the banana crop carries great risks, risks much higher than nearly any other commercial crop grown, and so to be a safe investment one must not be satisfied with only a marginal profit per acre, as otherwise without reserves which only good profits can create, very awkward situations may readily arise from a prolonged drought and recurring storms and of course our advancing enemy, the Panama Disease.

We have been impressing on the farming public that the Alpha of farming is proper soil selection for the crop to be produced and we wish that every venture in banana growing should be preceded by this very necessary precautionary agricultural measure. As considerable acreage of these unsuitable soils exist it will be realised how very imporrtant to the island the study of alternative crops suitable for export becomes, for these lands must be made to produce, otherwise employment and income would become further restricted.

Every friend of the country should consider it a duty to assist in this search for new crops and new markets as this is one avenue which must be found to ensure our continued progress in agriculture.

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HIS EXCELLENCY THE GOVERNOR.

We feel sure that our readers have learnt with regret of the ill-health of our President, His Excellency Sir Ransford Slater, G.C.M.G., C.B.E., which has forced him to be absent from his high office for an extended period.

His Excellency's attitude to our Society has been one of great sympathy and understanding and we feel sure that did the finances of the Colony permit, he would have encouraged a considerable development and extension of our work.

We trust that he will be blessed with a speedy return to good health and so be enabled to later exercise those abilities with which he is endowed, to the benefit of the Colony.

Sir Arthur Jelf now becomes by our Constitution the Acting President of the Society and Mr. W. D. Battershill, the Acting Colonial Secretary, is also by our Constitution a Member of our Board of Management.

Members should be fully aware of and if not, we take this opportunity of stating it as a fact the deep interest taken by these gentlemen in the furtherance of the agricultural prosperity of Jamaica and so we are fortunate in being able to look forward to continuous progress without fearing any hiatus in the operations and work of our Society.

MULTIPLYING THE RAINFALL.

In many countries of the world there are large areas of good productive land with rainfall so deficient that the annual precipitation is insufficient to produce crops. However, they actually succeed in producing crops, possibly once in two years by storing the rainfall they get in the interim in the soil. To achieve this the soil is well ploughed and allowed to lie fallow and after each shower of rain promptly harrowed to retard evaporation. These operations are repeated after each succeeding shower of rain until the aggregate moisture stored is considered sufficient for growing crops of grain, when the areas are planted and usually successfully cropped. In Jamaica, fortunately, although we have some very dry areas there are none quite so dry that cannot be cropped annually.

On our last visit to the Bull Savannah area in St. Elizabeth, it struck the writer that to cultivate an half an acre of land mulch had to be provided from at least another two acreas at the cost of much labour. Mulching is of course a very excellent practice, but even with the mulching quite frequently the volume of production is limited hy the moisture in the soil. We suggested the application of a somewhat similar principle as that applying to the mulch, to be applied to the rainfall and that is that the run off of a certain area of land could be collected by contour trenching and diverted to a smaller area which should be kept in proper condition to absorb moisture. If for instance the run off of two acres was collected and diverted on to half an care the rainfall falling on that half acre would theoretically be multiplied five times. Of course as a certain proportion of the rainfall would be absorbed by the larger area actually the rainfall would not be multiplied by as many as five times, but nevertheless the multiplication would be considerable and the resulting increase of the moisture on the prepared area would reflect in production of much larger crops than is at present produced.

The principle is not a new one. Every tank with a catchment uses this same principle to increase its supply.

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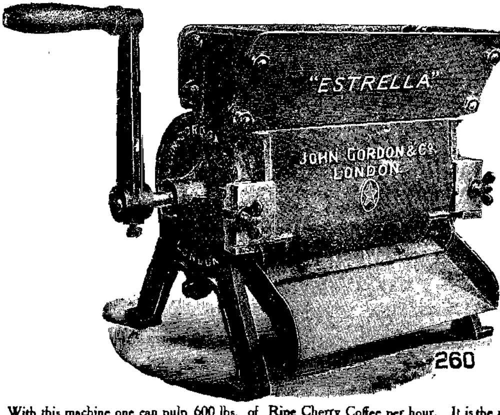

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THE FARM SHOULD FEED THE FAMILY.

The keenness of the depression both here and abroad has been made possible and is accentuated due to the fact that modern farming economy is organized for producing mainly money crops which have to be marketed and then the money used for meeting the demands and purchasing the needs of the farmer. The farming communities of the pioneering days started out to farm and obtain a livelihood thereby without depending on even the existence of an export market, the prime object of the farm then being to provide sustenance for the family. The subsequent development of export markets as we stated before has rather eliminated the necessity of the feeding of the household from the products of the farm. It is because this has been the case that the collapse of export markets has resulted in many countries in the bankruptcy of farms.

In Jamaica fortunately our smaller farmers do produce a considerable proportion of the food they eat and it is for this reason that depression has not had the same effect on this country as in many other countries, not least of all being America. We strongly advise farmers in this country to give the aspect of home sustenance more serious consideration and in this connection we publish below an article entitled "Fresh Meat all the Year Round" outlining one method whereby the farm housewife can contribute to this very desirable goal.

Editor.

(*Extract from Breeder's Gazette, November-December*, 1933).

Fresh Meat All Year Round.

By Grace Viall Gray.

Who wouldn't be proud and have somewhat of the "lord-of-all-I-survey" feeling in looking over shelves of home-canned meats, home-canned foods of any kind, in fact?

The butchering season is here. Because a major part of the wealth of the farm is the food which it supplies, it is in knowing how to conserve a part in adequate amounts for the family that yields highest dividends for time and labor. The depression hasn't really touched "the good eartb," for under efficient management her bounteous crops are fully realized. To save the necessary part of this produce for food precludes the necessity of buying anything except minimum extra food requirements, thereby solving a good part of the family finance problems.

Many things can be done with meat at butchering time. Good home-canned meat is like fresh meat, and what a treat it can be—both from the convenience standpoint and its palatability! It is cut, cooked and almost ready to serve; no fuss or worry when unexpected guests arrive or when the day is taken up by other than kitchen duties.

Right Place and Right Things.

Good equipment in a convenient and clean working space, a high quality of fresh meat, and a thorough knowledge and use of canning principles are pre-supposed essentials in obtaining good results in the task of home-canning. You will need plenty of table space and if possible a chopping block in a cool place to carry out the canning job. The basement is a good place. A good stove and hot water supply are necessary. Have the approximate number of jars and lids tested, clean, and hot, ready to use. A generous supply of new rubber rings should be on hand. Never, never use old rubber rings for any kind of canning. Have plenty of sharp knives for different uses, skillets,

kettles, roasters, long-handled forks spoons, and tongs or other utensil to be used for lifting the jars from the kettle, cooker or wash boiler. If you use a water bath such as the wash boiler, the jars should be protected from the bottom of the bath by a rack and the boiler or kettle must be high enough so that the water may continuously be at a "jumping boil" and at least one inch over the tops of the jars. A pressure cooker is invaluable for the canning of meat.

Meat Canning Technique.

Now for the steps in meat canning. After the carcass has been bled well, the meat should be thoroughly cooled. Approximately 24 hours is required for the animal heat to leave the body. Cut up the animal, sorting as you cut, laying the roasts together, the frying portions, the stewing pieces, etc. Get the roasts into the oven early, before breakfast if possible. When they are well browned, they are ready to be put into jars. The wide-mouth jars are best for the roast meat, and the small-mouthed jars may be used for the boiling meat which can be cooking on top of the stove while the roasts are in the oven. Steaks and chops may be done next, then the soup stock, which should be simmered down very low to save space in the jars.

Although meat may be packed, cooked or uncooked, it is better to pre-cook it before placing in the jar. Pre-cooking makes it possible to get more meat into the jars due to the shrinkage which takes place in pre-cooking and furthermore the meat is heated, which is the beginning of the sterilization process. Cut the partially cooked meat into convenient-sized pieces and pack loosely in the jars to within half an inch of the top. Packing loosely in the jar allows for proper heat penetration. For uncooked meat, add one teaspoon salt to each quart jar. Other seasoning is usually done after the meat is opened for use. Do not add any water or soak the meat in water. The latter also applies to cooked meat as it extracts the juices and makes meat stringy and tough. Roast, boil or fry meat one-half hour. Remove gristle, bone and unnecessary fat while cutting into pieces and pack while hot. Boil the liquid in the roasting pan to about one-half the volume and season well. Pour in the desired amount of liquid gravy. For both cooked and uncooked meat, put on wet rubber rings and caps and partly seal tbe jars. For a screw-top type of lid, turn the cap until it firmly catches hold of the rubber but do not fully seal. Process in hot water bath for three hours or in a pressure cooker at 10 pounds pressure for 90 minutes.

Storing Your Canned Meat.

Due to the composition of meat, it offers a medium for growth and development of some of the more active and resistant spore-forming bacteria. Observance of directions will assure the meat's keeping. For the water-bath method, begin counting the time when the water has reached the "jumping boil" stage and keep it so throughout the process; in a pressure cooker, count the time when the pressure gauge shows the proper pressure. Be sure that all the air is driven out of the cooker, before the petcock is closed and pressure produced. Otherwise you will not obtain the high temperature you should have under the registered pressure. Be sure you understand the use of your cooker. After processing, remove the jars from the canner and seal immediately. Do not attempt to tighten the lids after the jars have cooled. This may break the seal. Store jars in a cool dry place, and reheat all canned meats thoroughly before using.

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HONEY.

EXPORT.

Considerable stir in the export honey world has been caused by complaints from the London Markets of our honey reaching there in dirty condition and containing foreign matter. The Advisory Committee under the Agricultural Produce Law as well as the Board of Management of this Society has been considering the question of methods to be adopted for inspection and improvement of this commodity for export. The Hon. Director of Agriculture, Mr. A. C. Barnes, who is a member of both the Boards mentioned, and the Hon. Mr. P. W. Sangster, M.L.C. for St. Elizabeth, who is a member of our Board of Management and Chairman of our Bee Industry Committee, have been making quite a study of the situation.

One very interesting development is that it may now be definitely stated that honey may be shipped in four gallon tins and cased quite as cheaply as the cost of shipping in casks. We understand that quite sizable trial shipments have been planned for shipment in this new type of container which is new to us but standard in many of the large honey exporting countries. Should any small shipper be interested in tins we should be glad to hear from them as we can assist them in procuring these.

SOME FACTS ABOUT THE BEES.

By H. H. COOTE, Instructor in Beekeeping.

Queen.—Although treated royally by the workers she is pure and simple, a mother. Her function is to lay eggs, in the hieght of prolificness she is capable of laying up to 1,000 eggs per day or more.

When not mated she will lay eggs, but they will only bring drones, because they are unfertilized; when she is mated she will lay both fertilized and unfertilized eggs, it depends normally, entirely upon the cells in which she is depositing these eggs, if in a drone cell drones will be the result, if in a worker cell, workers will come. After mating the queen fertilizes her own eggs, the fertilized eggs although intended for workers can be turned into a queen if the necessity arises with some difference.

For a Queen.—Special and more abundant food is given her in the shape of a highly nourishing food called "Royal Jelly" prepared by the bees; the cells are drawn out resembling a peanut shell, this is necessary to give her full development, and she is so much larger and longer than the worker or drone.

The queen takes 16 days from the date the egg is laid until she emerges from the cell. Within 7 to 8 days she is supposed to be mated, and in a matter of 3 days she will start laying.

She can live 5 years if allowed by the apiarist or the workers; this seldom happens, however, as she is certain to retrograde as time goes on, so that in a well kept apiary she is only given a year or two, and is replaced by a younger one. The workers themselves will replace her by rearing a young queen to take her place at the first sign of failing. (Very often this failure is not discerned by the Apiarist). In their wild state snugly in a rock protected from rain or sun, the workers will apply their laws, and rear a daughter that is more vigorous to carry on the home, and they have no remorse in doing away with the old lady to give place to this younger mother (or queen). The old queen may even be permitted to remain in the Colony until this young

daughter is mated so as to make sure that the existence of the Colony is not at stake. The usual rule is:—if there are two queens in a Colony, they will fight and it is sure that one will kill the other to gain supremacy, the younger always having the better of it. The queen has a sting which she uses in battle with another.

Under the above conditions this is termed "Supercedure," but there are other instances such as the "Swarming Propensity." When the old queen will leave the Colony with a compliment of workers, not however, before some preparation that a young queen will soon be hatched to carry on the home. When our daughters get married they must find their new homes, with the bees it is different, the task is left to the mother to find a new abode; leaving the old home to the daughter that may soon arrive; why I say "soon arrive," it means that queen cells were started in the presence of the mother, and whether she wants to permit it or not, the workers feel it is time for increase, and the old lady with her escorts forming a swarm, should look for a new home, and leave the rest (mostly young bees) to carry on with the daughter that will soon emerge. In this instance scouts are sent out to find this new home.

Generally, quite a lot of stores are left behind so as to insure every comfort for this young lady when she arrives. In most instances, the workers accompanying the outgoing queen gorge themselves with honey in case of emergency, so that they could exist until the new home is set up.

It is generally thought that when a swarm is leaving the Colony the queen goes first, nothing of the kind, the workers are the ones to lead the way, and when perhaps half the number is out, the queen follows.

The workers then will circle the queen as if to guard her from any harm. She is not always the first to perch on a branch, but induced by a number of workers whom she may follow with the result that all others fall in knowing full well that without her the swarm would be a negligible quantity. If by any chance, the queen should be lost. the only alternative is, that the workers would return to the Colony they had left. If this queen was captured by the Apiarist, and held by her wings in his hand although the workers might have perched on a branch, they would soon leave and would even cover the Apiarist's hand, forming a swarm if he was not too nervous to receive them. It is not really the question of a queen leading a swarm but the conscientious duty of a child to a mother which the bee highly respects even under adverse conditions.

One thing must be remembered by the Apiarist, that the queen gets but one mating, and if she is to continue her usefulness she should not be starved.

Workers:—Are undeveloped females. These should be really classed into two sections: Workers and Nurse bees, as either is distinctly separate from the other. A worker bee is one that is around 17 days old, except in the honey flow when they forcibly mature about 8 to 10 days. The full fledged worker bee will never turn its attention to nursing they feel that their duty is to gather nectar and protect the colony from any invasion: for instance, if a colony comprises only of these hard fledged workers, and by chance they are queenless, it is ten chances to one that they would accept a cell or queen. They are most unreliable as sometimes they would even admit a cell, and when a queen is hatched they would ball her, if not killing her outright, destroy her wings that she would be incapable of taking her wedding flight.

A worker bee when little or no honey is coming in, will perch on over 1,000 petals of flowers before getting a load to take back to the apiary. She will travel over three miles so as to get a load that would not be enough to half fill an individual cell. Her life depends on the time of year that she came in existence, if, during a dearth when no honey is coming in, she may live for three months, but if she is unfortunate to come around the honey season, her life would not be more than three weeks at the most. The reason for this is, that she would work so hard endeavouring to gather as much honey to stock her colony, that her wings would be worn out.

A fairly strong colony should consist of 30,000 to 70,000 workers, a queen and a few drones. The workers that gather the honey are not those who consume it, as they generally die before the necessity arises for them to turn on this surplus storage. This is caused by the generation changing so rapidly.

In case a Colony goes queenless for any length of time, a worker or workers will depute themselves to the laying of eggs with the hope that they would resuscitate the Colony. This however, is a futile attempt, as wherever the eggs are laid, whether drone or worker combs, they will all come drones, and at that an inferior kind.

The young bee, say—from 5 to 6 days old are very important in a Colony, in fact, a Colony without them is bound to be a failure sooner or later. The Nurse bees are the ones that supply the young bees with food (pre-digested). When they are in the worm stage, they take care of these younger ones, supplying them with all that is necessary until they have passed the worst where they are capped over with sufficient food until they are able to emerge.

The nectar gathered by these workers is not placed in the cells just as they gather it, it is made suitable through a system which is termed "Pre-digested."

The workers have stings which they use in defence against any invasion of their Colony.

Drones.—These are the perfect male, the number of them in the Colony depends on the season of the year, sometimes, hundreds and another time none at all. If plenty of honey is coming in, or the colony fully stocked with food, quite a number of them will be reared-but, at the first sign of dearth these chaps are thrown out as they consume quite a lot of honey that they did not take any part in gathering, They have no stings, therefore are defenceless. Their duty is to mate with the queen which takes place in the air. His organ is wrong out from him and ingrafted in the queen and he dies immediately; he never lives to see his children, he has no father, his nearest relative in the male line being his grandfather, the queen is his mother, but if she did not get mated she would hatch him all the same. In fact, the mating of his mother has nothing to do with his coming into existence. Why he has a grandfather is because his mother (the queen) must have a father, hence, this distant connection.

Without him you could get no queens or workers, therefore, although considered lazy, yet, he is of great importance in the Colony. The Apiarist is always keen in getting the best type of drones to mat with his queens, as inferior drones mating with even a good queen will bring inferior workers; hence, we must look at this chap as of some importance.

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HOLDINGS IMPROVEMENT COMPETITION, NORTH-WEST ST. ELIZABETH.

To the Members of the Board of Management.

Gentlemen:—

Having completed the judging of the Holdings Improvement Competition in North-west St. Elizabeth, of which district Mr. J. R. Graham is Instructor, I hereby beg to submit my report.

The first judging which occupied 9 days was done between the 3rd and the 9th July, 1933 and the second which also occupied 9 days was done between the 5th and the 20th March, 1934.

In the first judging, 34 competitors entered, but in the final 6 dropped out so only 28 holdings were judged.

The Instructoral district judged is practically a new one having only a few persons who had been in previous competitions.

This district had suffered from the hurricane of the 29th October last and it is gratifying to find how those competitors who submitted to the final judging rose to the occasion and overcame the difficulties caused thereby.

One competitor—Nathaniel Channer, got drowned during the October weather, but his wife surmounted every difficulty and presented her holding which took the 6th place in the competition. Another competitor—Nehemiah Scott, of Merrywood, in the first judging had lately acquired a piece of land with a hut on it and no fence. At the second judging, he had completed a new shop with two living rooms attached with a cellar for storing. The land was fully enclosed and a new pit latrine was completed. He had also made extensive cultivation. Another outstanding competitor is I. Leo. Roye, who at the first judging had an unfinished house and no outhouses except a latrine. At the second judging he had completed the house, adding a bath-room, and other necessary outhouses, also a tank and a barbecue.

The value of these competitions will be seen in the great improvements to holdings which otherwise would not have been attempted and for the genuine spirit of emulation which they engender.

Fences and Gates.—Eight holdings had no fencing but at the second judging 6 of these had fences. Some who had draw-rails removed these and put up gates. Where fences and gates were in bad condition the owners had them repaired. The holdings judged, with two exceptions, are now much better enclosed and sub-divided.

Houses.—In the Merrywood and Ipswich districts, houses were a weak feature of all the holdings, but for the second judging definite efforts were made to improve these especially in three cases where new buildings were erected. In the other districts houses were fairly satisfactory.

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Flowering size Rose Bushes in 8″ pots 3/- each.
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Out Houses.—Most holdings had outbuildings of some sort. Those that were in bad condition at the first judging have been repaired. One holding which had no out houses at the first had all ready for the second judging.

Curing and Storing.—This district has very few tanks for storing water, but the competition has brought about the building of one new tank, the repairing of an old one and the starting of two new ones. Seventeen competitors had barbecues for drying their products. The majority had storing houses for their produce.

Manure and Mulch.—Not much of mulching is done in this district and very little in the way of storing manure, but some attention is given to tillage. Since the first judging a few competitors have made pens and sheds for their goats. While judging I took the opportunity of pointing out the need for collecting and using all their animal manure.

Staple Crops.—The district is one in which there should be more of staple crops than was evident. In the Brompton area cashew seems to be the most suitable staple crop. In the other districts coffee, pimento, citrus as well as canes and bananas thrive, but a more, systematic cultivation of these is necessary.

The Instructor, Mr. G. R. Graham, has done a lot of budding of citrus and mangoes during his short time in the district. If the people will follow up the lead given, in years to come there will be a good deal of citrus in this part of the parish. More could also be done in the planting of valuable timber trees.

Catch Crops.—The ordinary catch crops of corn, peas, yams, cocoes, cassava and sweet potatoes thrive well in these districts. Irish potatoes, cabbages, tomatoes and tobacco also do well. What is wanted is a steady market for the surplus of these crops.

Live Stock.—The chief live stock of these parts is the indispensable donkey. Pigs, goats and fowls are in evidence; there are a few cows, horses and mules. The pigs need to be improved by the introduction of boars of the Essex and Poland China strain. The poultry should also be improved by getting cocks of some pure bred strain. The Instructor for the district has been instrumental in introducing a few Rhode Island cocks.

One of the values of live stock on a holding is to supply manure; this has to a great extent been neglected. A few competitors, following the advice given on my first visit, have begun to store the manure of their animals.

General Conditions.—Between my first and second visits the general conditions of all the holdings have shown marked improvement. Pastures have been cleaned, fields weeded and fences and gates repaired, so that on the whole the effect was more pleasing to the eye.

Tools and Implements.—The tools found were the ordinary hoe, cutlass, pickaxe and crow-bar, but a few competitors had forks and spades. Forking is being carried out in the districts of Merrywood, Springfield and Newmarket.

Results under difficulties.—The hurricane of October last greatly affected the plans of the competitors and multiplied the difficulties they had to overcome in making the necessary improvements for the second judging.

Proportion of land under cultivation.—A very fair proportion of the holdings judged is under actual cultivation. Where ground provision is not grown, the land is used as pastures and contain valuable fruit, pimento and timber trees. Rocky hill tops are in ruinate.

(Signed) H. W. LYNCH, Judge.

MARK AND PREMIUM AWARD SHEET OF HOLDINGS IMPROVEMENT COMPETITION—NORTH-WEST ST. ELIZABETH.

Instructor for District—Mr. G. R. Graham. Judge—Mr. H. W. Lynch.

Name of Competitor.	District.	Postal Address.	1st Judging	2nd Judging.	Increase.	Percentage.	Prize.
1. Nehemiah Scott	Merrywood	Ipswich	175	300	125	71	£4 14 8
2. I. Leo. Roye	ditto	ditto	475	730	255	53	3 10 8
3. W. I. Poyser	Brompton	Fyffe's Pen	550	760	210	38	2 10 8
4. O. D. March	ditto	ditto	395	540	145	37	2 9 4
5. Samuel Watson	New Savannah	Newmarket	400	540	140	35	2 6 8
6. Mrs. N. Channer	Cotterwood	Fyffe's Pen	530	700	170	32	2 2 8
7. Miss L. Tomlinson	Retirement	Giddy Hall	345	455	110	32	2 2 8
8. Jonathan Bell	Merrywood	Ipswich	320	420	100	31	2 1 4
9. E. A. Smith	Reading	Lacovia	525	685	160	30	2 0 0
10. Charles Austin	Merrywood	Ipswich	390	510	120	30	2 0 0
11. James Nelson	Fyffe's Pen	Fyffe's Pen	480	625	145	29	1 18 8
12. David Stewart	Merrywood	Ipswich	245	315	70	28	1 17 4
13. Cecil Bailey	Bigwoods	Newmarket	525	670	145	28	1 17 4
14. M. T. Coke	Springfield	Springfield	625	775	160	26	1 14 8
15. Gilbert Winter	Fyffe's Pen	Fyffe's Pen	475	595	120	25	1 13 4
16. Simeon Stewart	Beeston Spring	Beeston Spring	495	610	115	23	1 10 8
17. Richard Patterson	ditto	ditto	495	605	110	22	1 9 4
18. Mary Power	Merrywood	Ipswich	545	655	110	20	1 6 8
19. James Wiggan	Brompton	Fyffe's Pen	465	560	95	20	1 6 8
20. Jonathan Clarke	Ipswich	Ipswich	455	545	90	20	1 6 8
21. Charles Scarlett	Springfield	Springfield	655	775	120	19	1 5 4
22. Newton Richards	Lennox	Newmarket	695	820	125	18	1 4 0
23. Alfred Jamieson	Merrywood	Ipswich	475	555	80	17	1 2 8
24. J. E. Downer	Springfield	Springfield	520	650	85	16	1 1 4
25. Christopher Graham	Merrywood	Ipswich	495	565	70	14	0 18 8
26. Samuel Rodney	Ipswich	ditto	495	565	70	14	0 18 8
27. Daniel Smith	Merrywood	ditto	460	520	60	13	0 17 4
28. Joseph Samuel	ditto	ditto	410	465	55	13	0 17 4
						Total	£50 5 4

BITTER DAMSEL WOOD.

At the instance of the Mile Gully Branch of this Society our Board of Management recommended to His Excellency the Governor that Bitter Damsel Wood which is now being extensively used in the manufacture of matches by the local Match Factory, be added to the Schedule of Law 4 of 1909, A Law relating to Praedial Larceny. As a result, His Excellency the Governor has issued the following Order:

"The Governor in Privy Council in exercise of the power conferred, by Section 1 of Law 4 of 1909 do hereby order and direct that the article of Agricultural Produce known as "Bitter Damsel Wood," shall be added to Schedule "A" of the said Law.

Made in Privy Council this 19th day of February, 1934.

A. R. SLATER,
Governor."

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APPLY

REGINALD AITKEN, 122 Tower St., Kingston

Order made by the Governor in Privy Council on the 9th of April, 1934, re the Buying, Selling and Exporting of Citrus Fruit.

I, the Governor in Privy Council in exercise of the power conferred by Section 13 (1) of the Agricultural Produce Law, 1926 (Law 19 of 1926), and of every other power hereunto enabling do hereby order and direct that the Regulations relative to the buying, selling and exporting of citrus fruit which were made by the Governor in Privy Council on the 22nd day of July, 1930 as amended by an Order made by the Governor in Privy Council on the 19th day of June, 1933, shall be and the same are hereby revoked and I, the Governor in Privy Council in exercise of the power conferred by Section 13 of the said Agricultural Produce Law, 1926, do hereby make the following Regulations relative to the buying, selling and exporting of citrus fruit in substitution for the said Regulations revoked in and by the foregoing portion of this Order.

Regulations made under the Agricultural Produce Law, 1926, relative to the Buying, Selling and Exporting of Citrus Fruit.

GATHERING OF FRUIT.

1. Citrus fruit intended for export or local trade by any person shall be gathered by the use of clippers and placed directly into bags or padded baskets not more than 13 inches deep from which it shall be immediately transferred to boxes or padded hampers or baskets of rigid construction. Fruit shall at no time come into direct contact with the ground nor be exposed to sun or rain nor stored with any surface moisture thereon.

QUALITY FRUIT FOR EXPORT.

2. No person shall—

(a) export, or

(b) offer for export, or

(c) offer knowing the same may be exported, or sell or offer to sell or purchase for export any citurs fruit which are "unmarketable fruit" as defined in Section 26 of Law 19 of 1926.

CONVEYANCE OF FRUIT.

3. No person shall convey citrus fruit loose in a vehicle but such fruit shall be placed in boxes which boxes shall not be more than 13 inches deep and shall be so packed within the vehicle as to prevent injury to the fruit.

Fruit conveyed other than by a vehicle may be conveyed in hampers or baskets of rigid construction so lined or padded as to prevent injury to the fruit.

PROTECTION OF FRUIT.

4. No person shall—

(a) stand, sit or lie upon citrus fruit or upon boxes containing such fruit,

(b) place any article upon fruit or upon such boxes,

(c) transport or carry any person or article upon such fruit or upon such boxes whether packed or unpacked,

(d) handle citrus fruit at any time within a packing house or adjacent thereto unless such person shall be wearing gloves which shall meet with the approval of an Inspector of Produce.

PURCHASE OF FRUIT.

5. No person shall purchase or sell, or offer to sell or purchase for the purpose of export, citrus fruit which has been gathered from the tree except by

(a) actual count, one for one,

(b) standard field box measurement or half section thereof, or

(c) by actual weight.

Standard field box measurement shall mean a box of two divisions, each division measuring, internally, twelve inches wide, thirteen inches deep and fifteen and one-half inches long. Such box shall be filled with fruit level to the sides.

PACKING HOUSE.

6. A licensed packing house for citrus fruit shall have a floor area of not less than 1,200 sq. ft. and a purchasing depot of not less than 400 sq. ft.

No person shall place or store citrus fruit intended for export on the floor of a packing house or of any depot for citrus fruit, but such fruit shall be placed or stored in boxes or on shelves having smooth surfaces and rounded edges, to a depth not exceeding 18 inches which shelves and boxes shall meet with the approval of an Inspector of Produce.

An Inspector of Produce may at any time direct that the total quantity of fruit in a packing house shall not exceed one field box per 4 sq. ft. of available floor space.

A packing house containing citrus fruit may not be used for the storing of goods other than those connected with the packing of fruit.

Washing and drying facilities a colouring chamber and adequate ventilation shall be provided in every packing house to the satisfaction of the Chief Inspector of Produce.

The construction and equipment of the packing house shall be subject to the approval of the Chief Inspector of Produce. Provided however that if any person shall on the 1st day of April, 1934, be the owner or occupier of a packing house which shall not be in conformity with this Regulation but which shall in all respects conform with the Regulations heretofore in force such person shall be allowed a period of six months computed from said 1st day of April, 1934 to re-erect or remodel such packing house in order to conform with this regulation and his license may be endorsed accordingly.

PACKING OF FRNIT.

7. (1) No person shall pack for export or attempt to export any citrus fruit which does not comply with the following conditions:—

(a) such fruit shall he mature, fully coloured, free from decay, bruises, creasing, unsightly scars, dryness, scales, dirt and sooty mould and cured to the satisfaction of an Inspector of Produce.

(b) such fruit shall be tightly wrapped in paper and printed with the trade mark of the exporter approved by the Chief Inspector of Produce.

(c) boxes containing such fruit for export shall he labelled with labels of a kind to be approved by the Chief Inspector of Produce and printed with the Trade Mark of the exporter. Such labels shall be printed in colours and on paper of durable quality.

(d) boxes shall be stamped on both panel ends with the grade and number of fruit contained therein and the letters and numbers shall be not less than 1 inch high.

(e) boxes shall he distinctly marked in order to show the kind of fruit they contain and the variety and the number of fruit.

(f) The approval by the Chief Inspector of Produce of any paper, labels and boxes for packing citrus fruit only covers the operations of any exporter for the season succeeding such approval. Samples of such boxes, paper and label, shall be left with the Chief Inspector of Produce for the purposes of record.

(2) Boxes of citrus fruit containing Extra Fancy fruit and Fancy fruit (as hereinafter defined) of approved varieties shall consist of fruit having the same varietal characteristics and shall be marked with labels indicating the grade of the fruit and the words "B.W.I. fruit, produce of Jamaica."

The approved varieties, for the purposes of this Regulation are:—

Grapefruit—Marsh, Duncan, Foster, Triumph, Silver Cluster and Walters

Oranges—Valencia, Parson Brown and Washington Navel.

(3) Stencilling of individual fruit shall be adopted only in respect of the Extra Fancy and Fancy Grades and these grades shall he marked "B.W.I." but individual stencilling may also be used on Choice and Standard grades.

(4) Citrus fruit for export shall be graded in five grades as follows:—

EXTRA FANCY, FANCY, CHOICE, STANDARD AND RUSSETS.

Extra Fancy shall be fruit of the same variety and shape, which is firm, fully coloured thin-skinned, of smooth exterior and entirely free from all blemishes.

Fancy shall be fruit of the same variety, fully coloured and of similar shape, and shall be firm and approximately not more than 5% marked.

Extra Fancy and Fancy shall be limited to the approved varieties as described in Regulation 7 (2).

Choice shall be fruit fully coloured and of similar shape and shall be firm and approximately not more than 15% marked.

Standard shall be fruit of uniform shape and fully coloured and approximately not more than 30% marked.

Russet shall be fruit that is firm and uniform in respect of shape and surface.

The above mentioned percentages refer to the surface area of any one fruit.

A tolerance of 5% by count should be permitted in respect of all the grades.

"Culled" or "Orchard Run" fruit shall be fruit which is mature sound and in every way suitable for manufacturing purposes. No person shall export such fruit except under a permit from the Chief Inspector of Produce. Applications for such permits shall be made at least 7 days prior to the date of sailing of the vessel by which the fruit is to be carried and shall state—

(a) the destination of the fruit

(b) the purpose for which it is to be used, and

(c) the quantity to be exported.

Such fruit shall be packed in boxes clearly marked "Orchard Run" or "Culls" for manufacturing purposes only.

(5) An Inspector of Produce shall have the right to take a reasonable quantity of fruit from each shipment or packing house for the purpose of record or tests.

(6) No person shall export citrus fruit, other than Culls or Orchard Run fruit which have not been sized and packed to the satisfaction of an Inspector of Produce.

BOXING AND PACKING.

8. Any person packing citrus fruit for export shall use new boxes of standard size and of sufficient strength and stiffness to protect the fruit in transit; the cleats and boards of such boxes shall be rounded at the edges to protect the fruit from bruises. The type of box to be used by an exporter shall be first approved by the Chief Inspector of Produce under a permit in writing which shall state the period for which the permit is granted. The standard size of box shall be that adopted by the Florida trade which measures 1 cubic ft. in each compartment with a bulge not less than $2\frac{1}{4}''$ or in excess of $2\frac{1}{2}''$ in the case of grape fruit and not less than $1\frac{1}{4}''$ or in excess of $1\frac{1}{2}''$ in the case of oranges and the packing of fruit therein shall be similar to that used in Florida and shall be protected by guards of approved pattern in both compartments of the box and the dividing board in each box shall be covered with a sheet of paper. The central bulge cleat is optional, but if used shall be wrapped.

FRUIT FOR SHIPS' STORES.

9. All persons selling or offering for sale fruit for consumption on board a vessel as ship's stores shall be required to conform to these Regulations in all respects except that such fruit need not be graded, sized or packed in cases.

NOTICE TO INSPECTORS.

10. Any person who exports citrus fruit other than culls or orchard run fruit shall give not less than five days clear notice of his intention to make a shipment of such fruit to the Inspector of Produce for the district in which such fruit shall be packed for shipment, and in addition shall state from what wharf the shipment will be made. This notice shall be given for each shipment.

SANITARY CONDITION OF PREMISES.

11. The owner, occupier or person in charge of any premises used for the storage and packing of citrus fruit shall keep such premises and equipment in a clean and sanitary condition, to the satisfaction of the Inspector of Produce.

12. An Inspector of Produce shall be empowered to order the cessation of packing operations in any licensed packing house, the removal of any citrus fruit therefrom and the closing of any packing house which does not conform to the requirements of these regulations, and such packing house shall not receive nor pack any citrus fruit for export until such repairs or alterations as may be required by the Inspector of Produce shall have been carried out to his satisfaction.

CONDEMNED PRODUCE.

13. No person shall export or attempt to export agricultural produce which has been condemned by an Inspector of Produce as being unfit for export but such produce, when the destruction thereof has not been ordered by such Inspector of Produce, may be purchased by any person for use within the Island of Jamaica; Provided such person shall at the time of the purchase give to the Vendor an undertaking in writing that he (the purchaser) will not export or attempt to export such produce, and a copy of such undertaking shall forthwith be sent by the Vendor to the Inspector of Produce for the district in which the sale takes place.

POSTING OF REGULATIONS.

14. A copy of these Regulations shall be posted in a conspicuous place in every licensed packing house for citrus fruit.

PENALTY UNDER THE LAW.

15. Any person who commits a breach of any of these Regulations shall be liable on summary conviction before a Resident Magistrate to a penalty not exceeding Twenty Pounds and in default of payment, to imprisonment for any period not exceeding three months and if he be a Produce Dealer or exporter, to the suspension or cancellation of his License.

NOTE:—"Unmarketable fruit" as defined in Section 26 of Law 19 of 1926, means fruit in such a bruised, damaged, poor or immature condition in the opinion of the Inspector of Agricultural Produce at the time of inspection as not to be fit for shipment and to be prejudicial to the agricultural interests of the Colony if shipped.

Made in Privy Council this 9th day of April, 1934.

A. R. SLATER,
Governor.

THE WINNING ENTRY FOR OUR RECIPE COMPETITION.

By Mrs. R. J. Perkins, Claremont,—*Continued.*

Household Recipes.

Tuesday—continued.

Dinner.

Red Peas Soup.—1 pint of peas, 2 quarts of water, 1½d. worth of salt pork or ¼lb. salt beef. Soak the peas overnight (after washing) and boil in the same water until the peas are soft, adding the salt pork or beef about 2½ hours after boiling has begun; at the end of three hours, press the peas through the collander; serve with dry toast cut in dice.

Roast Leg of Pork.—A litte dripping; score the skin across in narrow strips, about ¼ inch apart; cut a slit in the knuckle, loosen the skin, and fill it with a sage and onion stuffing; brush the joint over with a little lard or dripping, and place in a roasting pan and put it in a good, brisk oven. Bake well, and serve with gravy made in the dripping pan. Serve with apple sauce.

Fruit Salad.—Slices of pine, oranges and bananas put alternately in a glass dish; sugar sprinkled over and grated coconut over all. Mangoes or tangerines may be added.

Wednesday's Menu.

Breakfast—Grape fruit—Cornflakes with milk and golden syrup, curried eggs, potato chips, cornbread and butter, stewed guavas, Jamaican made chocolate or milk.

Lunch.—White peas soup, fish pudding, chochos stuffed with remains of Tuesday's roast pork, cocoe fritters, roasted yam, fried ripe plantains, shrimp salad, plum pudding without eggs.

Tea.—Royal Baking Powder bread, sponge cakes, gizadas, mango dolce.

Dinner.—Sugar bean soup, anchovy toast, tripe and onion pie, yam balls, yampees roasted, buttered rice, soursop cream.

Recipes for Wednesday's Menu.

Breakfast.

Curried Eggs—Slice 3 hard boiled eggs and cover with sauce made as follows:—melt 1 tablespoon of butter or Crisco with 2 tablespoons flour, 1 cup of boiling milk, add milk slowly bring to the boiling point; salt and pepper to taste.

Potato Chips.—5 or 6 potatoes, cut in strips thinly, soak in cold or iced water 1 hour, drain dry between towels and fry in deep hot fat until a delicate brown; sprinkle with salt.

Corn Bread.—1 cup meal, 1 cup flour, 1 cup milk, 4 teaspoons baking powder, (1 egg if liked and a little less milk), mix and sift meal flour and baking powder, 3 times, add salt to taste, mix with milk and bake in buttered cake or bread tin. To be eaten hot with butter.

Stewed Guavas.—2 dozen ripe guavas, peel and core each one as done, into a basin of water, when done, put them into a sauce pan with water to cover, tie all seeds in a muslin bag and put with fruit, stew with 1 lb. sugar. Eat cold with milk or coconut cream.

Lunch.

White Peas Soup—prepared the same way as red peas soup.

Fish Pudding.—Boil 1 teacup full of milk and pour it over 4 ozs. of

bread, cover the basin and leave it for 15 minutes, then add 1 tablespoonful of anchovy essence, and beat all well together, stir in 1 cupful of any kind of fish, a little parsley, salt, pepper, and a teaspoon of finely cut onion; steam for 1 hour or bake for half an hour.

Stuffed Chochos.—Boil as many chochos as required, but for a small family, 2 will do, boil them with the skins on, when boiled, cut lengthwise (or they can be cut before boiling) scoop out the insides leaving enough near the rind to prevent breaking. Mash the pulp with minced meat of any kind, season with onion minced, a little butter, salt and country or black pepper. Cover the tops with fine bread or cracker crumbs with dabs of butter or other fat, and bake. A nice lunch dish. The pork left from Tuesday's dinner will do for this.

Cocoe Fritters.—Grate one large raw cocoe, add a beaten egg a little salt and butter and a teaspoon of butter, moisten with milk, and fry in hot lard, Rexo or Crisco.

Shrimp Salad.—1 pint shrimps (dried ones soaked in water until soft, may be tried if fresh ones are not procurable), 1 head lettuce, 1 hard boiled egg, mayonnaise dressing, beets, pepper and salt. Strain shrimps, chop lettuce, slice egg, place in salad bowl; a layer of boiled shrimps, a layer of lettuce, season with pepper and salt; spread over all, a mayonnaise dressing; garnish with beets and egg and a few small lettuce leaves.

Plum Pudding without eggs.—3 cups stale bread crumbs, 1 cup flour, 1 cup shortening, 1 cup molasses, 1 cup buttermilk, sour milk or evaporated milk, 1 cup chopped raisins, 1 cup currants, 2 teaspoons soda sifted with flour; steam in mould or shut pan for 3 hours. Brown bread crumbs are best but white may be used. Serve with butter sauce.

Tea.

Royal Baking Powder Bread.—4 cups flour sifted together with 7 teaspoons baking powder, 1 teaspoon salt, 1 tablespoon sugar, mash and rub in 1 medium sized cold boiled potato, sufficient milk to mix smooth stiff batter; turn quickly into greased loaf pan, smooth top with knife, dipped in melted butter aud allow to stand in warm place about 30 minutes; bake in moderate oven, about 1 hour; when done take from pan, moisten top with few drops cold water and allow to cool before putting up.

Sponge Cakes.—To each egg allow 1 tablespoon flour, 1 tablespoon fine sugar, beat egg well, add sugar, beat again, add flour lightly, bake in small cake tins; flavour with vanilla or rose water.

Gizadas.—1 grated cocoanut, brown sugar to taste, nutmeg, rose water, cinnamon, one egg pastry, coconut water; grate coconut, add sugar to taste with coconut water, spice and flavouring and beaten egg; line patty tins with pastry; put in the mixture and bake.

Dinner.

Sugar Bean Soup.—1½d. worth of fresh green sugar beans, 1½ quarts water, some soup meat, bones and a little salt pork, pepper skellion and herbs; put on the beans to boil (in cold water) when half done add a little soup meat, the bones having been put on with the beans, add the pork and a piece of yam. The addition of a few tomatoes is an improvement. The soup can be served strained or not, according to taste.

Anchovy Toast.—Toast and well butter some slices of bread, spread with anchovy paste, cut into squares and serve.

Tripe and Onion Pie.—(Copied from Jamaica Times.)—Put 1 lb. tripe and 2 large onions into a pot with just enough water to cover and cook

until tender; strain, but keep the juice; cut tripe into very thin slices and hack the onions into tiny pieces, but keep the two separate. Melt about a tablespoon of butter (or cheaper substitute); mash in a tablespoon of flour; add the juice you cook the tripe in and then half cup milk; stir; boil; add onion; stir; add tripe, salt, pepper; cook slowly for 3 minutes; now turn all into a pie dish and cover with a layer of Irish potato or yam, which has been well mashed with a little milk and butter or cheaper substitute. Smooth it over with a wet knife, prick it with a dry fork and bake a golden brown.

Yam Balls.—One large slice of yellow yam, white or negro yam, boil and mash it well with some butter and salt; add 2 beaten eggs; form into balls and fry in hot fat.

Sour Sop Cream.—Take 2 large sour sops, scrape out pulp; add 1 gill boiling water and mash through cullender or sieve; add ½ teacup white sugar, soak ½ oz. gelatine for ½ hour, make hot and pour over sour sop; put into a mould and place on ice for several hours where it will turn out a stiff blac mange.

Mango Dolce for Tea.—Pare and boil full green mangoes, press pulp through seive; equal parts pulp and white sugar; boil stirring often; add a little lime juice.

Thursday's Menu.

Breakfast.—Bananas, ricey cocoa, remains of tripe and onion pie warmed up and cut into neat pieces and served with some curried rice; buttered toast with grated cheese on top; coconut water.

Lunch.—Ackee soup, salmon souffle, mutton roasted or boiled (sheep or goat) yam pie, pumpkin fritters, roasted sweet potatoes; fresh cabbage salad, frozen bananas; mint sauce with mutton.

Tea.—Bread and butter, whole meal scones, orange buns, guava jelly.

Dinner.—Coconut soup, boiled mullet with butter sauce or white sauce, mutton pie, pumpkin and rice, boiled and buttered cabbage, white yam mashed with butter and baked, lime foam pudding.

Thursday's Menu Recipes.

Breakfast.

Ricey Cocoa.—Half pint white rice, boil very soft and add to it while hot some coconut cream and sugar to taste.

Curried Rice.—Boil 4 tablespoons rice with salt to taste, fry in boiling fat and add whilst frying, 2 teaspoons curry powder.

Lunch.

Ackee Soup.—Pick 12 ackees well, picking out the pink part, get them clean, wash well, put them into a piece of muslin and boil them; put on one quart of water, 1 ℔. of beef, a small piece of salt pork or salt beef, some seasoning, thyme, skellion; mash the ackees quite smooth, mix up with the soup and boil; serve with squares of toast.

Mint Sauce for Mutton.—Mix 1 tablespoon white sugar with ½ cup good vinegar, chop up some fresh green mint leaves and add to it. Let it infuse ½ an hour in a cool place before sending to table.

Fresh Cabbage Salad.—Grate the heart of a young cabbage and soak it in the juice of a lemon and a good sprinkling of castor sugar, over this grate a carrot (not an old one) and if you like them chop up 2 small onions and add.

Yam Pie.—Minced meat of any kind from left over scraps, season well with tomatoes, onions, skellion and herbs, salt and butter, a little sauce, put this at the bottom of a well buttered pie dish; boil and mash

any kind of yam, mix it up with a little butter, salt and one beaten egg, spread over the mince and bake.

Pumpkin Fritters.—A large piece of pumpkin; boil soft, mash with salt, a little factory-made made coconut oil, black pepper and one egg; mix; drop by spoonfuls into hot factory coconut oil and fry till cooked each side.

Frozen Bananas.—Peel and mash 1 dozen bananas fine; boil 1 ℔. sugar and 1 pint water for five minutes, strain; when cool add juice of 2 oranges and the bananas; freeze, turning slowly; when frozen add 1 pint evaporated milk and repack.

Tea.

Wholemeal Scones.—Mix together ¼ ℔. self-raising flour, ¼ ℔. wholemeal flour, stir in ½ teaspoon bicarbonate soda and ½ teaspoon cream of tartar, rub in lightly 2 ozs. butter or margarine, 2 ozs. granulated sugar, and a well beaten egg, mix to a firm dough with milk; turn on to a floured board, form quickly into scones, bake 10 to 15 minutes in a hot oven.

Orange Buns.—(Served hot). Mix together 6 ozs. flour and 3 ozs. granulated sugar, rub in 3 ozs. margarine until evenly mixed; add the yellow part of the rind of an orange finely grated, and stir in as much bi-carbonate of soda as will stand on a sixpence; add a well beaten egg, and then the strained juice of half an orange; mix well and add enough milk to form a batter that will just drop from the spoon. Half fill rather deep patty pans with the mixture and bake 15 minutes in a moderate oven.

Guava Jelly.—Wash guavas (ripe) put in a copper or enamelled vessel, cover with water and boil until guavas are soft but not pulped; strain off and measure 1 cup of white sugar to one cup of juice, stir until sugar is dissolved; strain and put on to boil, skim scum as it rises; boil until it will hang from the spoon.

Dinner.

Coconut Soup.—1 ℔. beef, 1 quart water, one small piece salt beef or pork, 2 small white cocoes, skellion, thyme, one coconut, ½ pint hot water; put on 1 ℔. beef with salt beef or pork, the cocoes, skellion, and thyme in 1 quart water to boil; boil down to 1 pint; grate a small coconut, throw ½ pint hot water on it, then squeeze out the milk, pour into the soup and boil up once. The soup must be boiled and strained before the coconut milk is added; stir well; serve.

Butter Sauce for Mullet.—Mix 1 or 2 tablespoons butter with some of the liquor the fish was boiled in; white sauce; melt 1 tablespoon Crisco or butter with flour (2 tablespoons added) rubbed together slowly, add boiling milk, 1 cup, then boil up again; salt and pepper to taste.

Mutton Pie.—The remains of the roasted or boiled mutton from lunch cut into nice pieces; lime a pie dish with pastry and put either ham or bacon on the bottom and sides, next put some hard boiled eggs, cut into thin slices, here and there, then bits of boiled potatoes or yam; make some rich gravy with the mutton bones, a little flour to thicken it, and some Pick-a-peppa sauce; add chopped skellion, tomatoes, pepper and salt to taste, arrange the meat in the pie dish filling up the spaces with bits of egg, yam or potato and ham or bacon, pepper all well; pour in the gravy, if not quite full, add a little flour mixed smooth with salt and water, cover with pastry and bake.

Pumpkin and Rice.—A large piece pumpkin, boiled with ½ pint of rice, and well mixed together with a little chopped skellion (tomato if liked); a little pepper and butter.

Cabbage boiled and buttered.—Cut a cabbage in quarters, let stand in cold water until crisp, shred and discard the core; cook in a small amount of boiling water (salted) 20 minutes; drain and season with salt and pepper. Butter and serve.

Lime Foam.—Ingredients, 2 tablespoons cornstarch, 2 cups (1 pint) water, 1 scant cup white sugar, juice of 2 limes, whites of 3 eggs. Method—mix the cornstarch with a little cold water, boil the rest of the water with the sugar and pour on the cornstarch, stirring all the time; return to the sauce pan and boil and stir for 10 minutes; take off the fire and add the strained juice of the limes and the stiffly whipped whites of the eggs. *Beat in well*; pour in a wet mould; serve cold with a boiled custard made with the yolks of the eggs as below:

Custard.—Beat the yolks lightly; boil 1 pint of milk (or not quite) with 3 tablespoons sugar, pour on to the yolks, stirring all the while, return to saucepan and gently simmer for a minute or so. Boiling will curdle the custard.

To be continued.

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HOGS.

Canadian Agricultural Journals are giving much publicity to the fact that in the Ottawa Agreement Great Britain has guaranteed Canadian farmers an open market for 280,000,000 pounds of bacon, the product of over 2,300,000 hogs. This market the Canadians have up to now not been able to supply to any great extent. Another fact worth thinking about is the fact that in 1932 our imports of hog products amounted in value to:—

Bacon	£5,515
Hams	17,639
Wet Salted Pork	21,303

making a total of £44,448.

Allowing that our manufacturing capabilities have not reached the stage enabling us to produce bacons and hams of comparable quality to the imported article, which fact would prevent us availing ourselves by local production of our local demand, yet it would seem to us that wet salted pork should not be beyond our ability to produce. This one item could put in producers' pockets the respectable sum of £21,000 if we set about it in the right way. This value represents over one million pounds weight of pork so that we have space in our own markets to take care of annually 10,000 hogs of moderate weight. Even on a cursory inspection of the imported wet salted pork it will be realised that there is a certain thickness of flesh and size of carcase that ordinarily we do not produce in Jamaica, but there are no sound reasons why we should not be well able to produce similar types out here.

Our experience in Jamaica points to the fact that although we are always importing well bred animals yet deterioration seems to set in after a few years breeding. The reason for this is popularly set down to the fact that we are in the tropics. We are not very inclined to accept this reason as being one hundred per cent. correct, and we think that to a much greater extent our lack of study with regard to rations for live stock on the whole is a much more potent cause for the deterioration after a few generations of the excellent stock we import, than the climatic influence.

We are hoping to arouse some interest in the matter and we would draw attention to the fact that there are good banana lands that have been lost to cultivation through our dread enemy, the Panama Disease that could very well and cheaply produce the Cavendish types of bananas and especially in coconut producing areas, we would be provided with two excellent basic constituents of an efficient hog ration, which with the addition of very small amounts of imported concentrates and local minerals, might put the hog industry on the road to success. These observations are very applicable to the parish of Portland which is in dire need of new agricultural industries and this parish has at least one advantage, and it is that one planter in the parish possesses possibly what is the finest stud of pure bred pigs there is in Jamaica, so that well bred boars may be easily acquired and used for breeding up the better class local sows.

We are quite sure that our Department of Science and Agriculture would assist anyone who desires to start the curing of wet salted pork on a commercial basis.

There are many other feeds that we produce and that can be produced which I have mentioned in this article, but the writer knows one careful penkeeper who pays the taxes on his farm from pigs fattened on the plum crop which is borne by live plum trees in his fences. We

would wish to warn those interested in growing live stock that unless they betray some interest in acquiring knowledge on the subject of feeds their success is likely to be very poor, but as what is to be done is worth being done well, this warning should certainly not be a deterrent to the production of really good pigs that produce good carcases.

There is always a difficulty in production by small farmers of organising the selling end, but we think this may be overcome by applying the co-operative principle in manufacture.

TUNG OIL.

We had the pleasure of having a very interesting visitor during last month, Mr. J. Russell Thornbery, the Governing Director of Messrs. Griffiths Bros. & Co., London, Ltd., a firm of paint and varnish manufacturers of very long standing.

Mr. Thornbery is a Past President of the National Federation of Paint and Varnish Manufacturers of the United Kingdom and gave us his opinion on the future of Tung Oil which opinion we consider of much value.

This gentleman, through the Federation, years ago participated in the effort to encourage the production of Tung Oil in the Empire with a view of securing Empire supplies of the product, and is very interested in learning what progress has been so far made in Jamaica; which up to now, it must be admitted, is very little.

One very interesting question that was put to him and answered was, whether with increased production from Empire sources such a full supply for the market would not result as to cause a drop in prices below a profitable level? This he thought hardly possible in view of the fact that the home of the Tung Oil (China), does not produce it under plantation methods and so no serious increase in production need be expected from that source; besides which the Chinese Oil is so often more or less adulterated to the point where buyers would readily turn to other sources of reliable supply.

It should be borne in mind that Tung Oil is a product essential to to the paint and varnish industry and is not a luxury product. It is also largely used in the linoleum industry and that the market is a stable and permanent one and is rapidly expanding.

Our hesitation in Jamaica in establishing the Tung Oil is due to the uncertainty as to whether our climate is cool enough for the varieties which produce the best quality oil. There are three or four farmers trying out the product on a small scale at various altitudes of the Colony and there are quite a few single trees scattered here and there which were distributed a few months ago by the Society.

As far as we know no tress have as yet produced fruit. Any information of existing trees in the Colony would be very much appreciated by the Editor of this Journal.

Proprietors of farms located in the higher altitudes with cool climates and soils of a slightly acid reaction may well try a few trees nearby to their homes, thus permitting easier observation and care. Incidentally the tree is very beautiful in bloom and ornamental.

The trees are said to be unaffected by any blight or parasites and require practically no attention. They grow to about 30 feet in height and about the same width. They begin to bear fruit about the fourth year and when the nuts are ripe they fall off and can be stored for many months without suffering any damage.

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DAIRY NOTES.

An interesting article appears in "Hoard's Dairyman" for February, 1934, on the subject of Cement-Sawdust for Floors of Dairy Barns. Several formulas are given and experience extending over eighteen years points to its durability. The following are the formulas:—

1. 9 parts sawdust (just common from the mill) and 7 parts cement covering regular concrete base.

Put on a layer of the sawdust-cement mix, $1\frac{1}{2}$ inches thick and it is satisfactory.

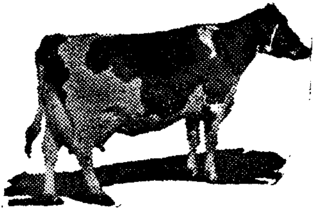
These proportions are by measure; nine buckets sawdust to 7 buckets of cement mixed to a desirable handling consistency and just floated rather than troweled, as to trowel the cement on top would kill the purpose of the sawdust.

2. The mix recommended by the Oregan Experiment Station develops a compressive strength of from 1,500 to 1,700 lbs. per square inch in 28 days. Such a mixture can be made of 1 sack of cement, $1\frac{1}{2}$ cubic feet clean sawdust free from bark, $\frac{1}{4}$ cubic foot clean sand, and enough water to permit of easy placing.

The amount of water necessary will depend upon the moisture in the sawdust. The actual amount required will be from four to five gallons per sack of cement or even less if the sawdust is very wet.

The best method for mixing is to mix well the sawdust, sand, and cement in the order named and then to add the water a little at a time, with continued mixing until the mortar is of about the same consistency as the concrete used in the base. It will help both in securing better workability and slightly in the insulating qualities if about one quart in volume of diatomite (Red Dog or similar flour) is added during the mix.

The mix will yield about $2\frac{1}{2}$ cubic feet of mortar which, when properly placed and aged, will transmit about one-half as much heat as the same thickness of ordinary concrete.



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POULTRY NOTES.

Incubator Hints.—

The importance of the proper amount of humidity for hatching eggs should not be lost sight of, whether the eggs are being hatched in an incubator or under a hen. In incubators it is customary to measure humidity with an hygrometer keeping as near to 65° as possible.

As however the shells of eggs vary in density and texture the rate of evaporation at any given degree of humidity may vary quite widely and as hygrometers cannot be used under hens it is useful to know from observation of the eggs itself that the rate of evaporation is normal. Excessive evaporation is a very fruitful cause of "dead in the shell" and too little will cause the newly hatched chicks to be wet and sticky, a very bad start for the baby chick as it predisposes to trouble in the lung, digestive and respiratory tracts. It is important that eggs for hatching be carefully selected for sound close textured shells and so have as much uniformity as possible as otherwise the rate of evaporation in each egg will be different and as it is only possible to provide one set of humidity conditions for all the eggs it will be realised that some of the eggs must of necessity be under unsuitable humidity conditions.

It need hardly be stated that more water in the incubator moisture pans and a little tepid water sprinkled on hens' nests are the simple ways of increasing the humidity.

In checking up on the eggs, be sure only fertile eggs are used for observation: we state an approximate measure for the normal rate of evaporation of a fertile hatching egg:

For fresh eggs (and no others should be used for hatching), the air space should not be more than the diameter of a sixpence. An egg (not being hatched) at seven days old should have an air space about three-quarters of an inch in diameter. The air space should occupy on the seventh day of incubation about one-seventh the length of the egg, on the fourteenth day of incubation about one quarter the length of egg, and on the eighteenth day (just before pipping time) about one-third the length of the egg. On the eighteenth day of the line between air space and embryo will be somewhat sloping. Observation should be started early as it is easier to adjust matters then.

* * * * * *

The table shown below is issued by a prominent Canadian poultry feed concern as being the approximate totals of feed required to grow chickens to different ages, and the approximate weights that might be expected from the various breeds. This should be quite interesting information to poultry keepers.

	Leghorns.				Rocks, Reds, Wyandottes.			
Weeks.	Feed Per Bird Pounds		Weight Per Bird Pounds		Feed Per Bird Pounds		Weight Per Bird Pounds	
	lbs.	ounces.	lbs.	ounces.	lbs.	ounces.	lbs.	ounces.
0	..	..		1	..	..	..	1
1	..	1	..	2	..	2	..	2
2	..	4	..	3	..	5	..	3
3	..	9	..	4	..	9	..	4
4	..	15	..	6	..	15	..	6

5	1	07	..	8	1	08	..	8
6	1	15	..	11	2	03	..	12
7	2	11	..	14	2	15	..	15
8	3	08	1	01	3	15	1	04
9	4	07	1	04	4	15	1	08
10	5	06	1	07	6	00	1	13
11	6	07	1	09	7	02	2	00
12	7	08	1	13	8	06	2	05
13	8	10	1	15	9	10	2	06
14	9	12	2	01	10	13	2	09
15	10	15	2	03	12	02	2	12
16	12	02	2	06	13	09	2	14
17	13	09	2	08	15	03	3	02
18	14	15	2	10	16	13	3	04
19	16	06	2	12	18	06	3	07
20	17	15	2	14	20	02	3	11
21	19	06	3	01	21	14	3	14
22	20	13	3	02	23	11	4	00
23	22	05	3	04	25	07	4	03
24	23	13	3	04	27	04	4	05

The figures opposite each week are the *approximate* totals of feed required to that date; and the weights per bird are the approximate weights at that date.

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BRANCH NOTES.

All Reports received are acknowledged in this section of the Journal. Notes intended for publication should be written *on one side of the paper only.* [Ed.

PORTLAND: Ann's Delight.—Meeting held March 15th. Present: Mr. L. L. Carrington, Supervisor; Messrs. H. A. Dunbar, R. A. Combes, 10 other members and a goodly number of visitors. Following the opening of the meeting by prayer the President expressed his pleasure at the attendance especially the visit of Mr. Carrington. Minutes of the last meeting were read and confirmed. All listened attentively while the Supervisor gave instructions on the growing of banana and citrus. He spoke chiefly about Panama disease, hurricane and borers as the chief things that trouble the banana plant. Panama disease in a field needs great attention, tools from diseased areas should be well cleansed before being used in healthy spots; for the hurricane bananas should he planted so as to be reaped in the Spring. To prevent borer attack the greatest care is needed. Re citrus he advised cultivation of Valencia oranges. A vote of thanks was unanimously accorded Mr. Carrington for his helpful instruction. Correspondence was read and dealt with. One Authorized Person gave his report and the National Anthem brought a very interesting meeting to a close.

Skibo P.O. (MISS) L. E. SUTHERLAND,
Secretary.

Bybrook.—Meeting held 8.3.34. Present: Messrs. R. M. Burgess, President, G. W. Wray, Instructor; nine other members and the Secretary. The Instructor spent nearly the whole day in the district demonstrating on Mr. S. Williams' holding where some very useful suggestions were given with regard to the pruning of coffee and cocoa; how to maintain fertility, etc. The minutes of the last meeting were read and confirmed. Letter from the Birnamwood Branch re the selling of bananas by weight instead of by grade created a long discussion which when put to the vote was lost 1 for 6 against. The Instructor's address was lengthy and useful. Among other things he spoke about soil fertility how and why it should be maintained. He then concluded by saying good-bye to the Branch this being his last meeting. Suitable replies were made hy Messrs. A. M. Burgess, E. G. A. Brown and R. Watsons' the Secretary of the the Skibo Branch.) This brought the meeting to a close with the singing of The King.

Skibo P.O. E. G. A. BROWN,
Secretary.

Belle Vue.—Meeting held on the 14th March. Present: Mr. John Somers, President; the Instructor; Mr. W. Z. Buckley; a goodly number of members and visitors and the Secretary. The meeting was opened with prayer and a few guitar selections were rendered. The minutes of the previous meeting were then read and confirmed. The Secretary, who who was delegate to the Half-Yearly General Meeting of the Society, gave his report. For this be was heartily thanked. The Guava River Bridge Fund showed great increase. Correspondence was deferred till the next meeting. Authorised Persons' reports showed that they were active. The Instructor advised them to be on the alert so as to have a clean district. The Instructor then gave his farewell address. He impressed the bouse with the following five points. (1) They were not to allow their Branch to fall to ruin as it was their only mouthpiece, improve by getting in as much new blood as possible. (2) Try and secure the Guava River Bridge this year, make sacrifices so as to raise £20 at least by March 31st (3) Get and read the Journals as they are very instructive and the cheapest agricultural literature with such a load of valuable ideas. (4) Of his retirement he expressed the wish that his successor be given the greatest support and that they were to keep their meetings regularly whether there was an Instructor present or not. (5) Try and improve their methods of cultivation by having mixed and varied products. The Secretary moved a vote of thanks to the Instructor for his eloquent address and expressed regret at his coming retirement but his consolation was in the fact that the Instructor will not be leaving the parish. He also hoped that he and family would be invited to open our expected bridge. After a few more guitar selections and the asking and answering of questions, the meeting terminated with The King.

Fellowship P.O. VICTOR V. BROWN,
Secretary.

Claverty Cottage:—Meeting held on the 10th March. There were present: Mr. John Barclay, President; Mr. Gilbert Wray, Instructor; twenty-four other persons, 12 members and the Secretary. The minutes of the last meeting were read and confirmed. The arrangements for the intended Yam Growing Competition were left over until the arrival

of the new Instructor for finality. The Authorised Persons reported the decrease of praedial larceny. Mr. J. Willis spoke on the road to Morses Gap. The meeting was of the opinion that the road needs proper supervision. The Secretary was directed to write to the proper authorities on the subject as also on the condition of the road through Clysdale. The Secretary was asked to invite the M.L.C. to visit the district. The Instructor addressed the meeting on *Soil Fertility, Drains and Manuring* in an able manner. Members expressed regret at his approaching departure. Eleven persons decided to become members. The Annual meeting was fixed for the 14th April. The meeting adjourned with the singing of the National Anthem.

Skibo P.O. W. T. McKay,
Secretary.

Moore Town.—Meeting held 6th March, with Mr. J. E. Harris in the chair. There was a fairly good turn out of members specially to meet the Instructor, Mr. Buckley, perhaps for the last time as their Instructor. On account of illness, however Mr. Buckley, was forced to be absent which was greatly regretted. The minutes of the last meeting were read and confirmed. The two Authorised Persons present reported on their activities for the past month. The delegate to the Half-Yearly General Meeting gave his report.

Letter from the Secretary reminding members of their obligations to the Society was read. Mr. H. W. Hay, Member of the Parochial Board of Portland who was present was asked to address the meeting. He gave a very homely and thoughtful address. He told the members of a cure for banana diseases called "K.D." found out by a Mr. Duhaney, late of Cuba. He, Mr. Hay, said he was going to try it in his field. It was decided to ask Mr. Duhaney to attend a meeting of this Branch and tell us something more about "K.D." The meeting adjourned after the singing of the National Anthem.

Moore Town P.O. R. Simeon Anglin,
Secretary.

ST. ANDREW: Content Gap. Meeting held 17th March, opened with prayer by the President, Mr. L. M. Lyttle. Five other members were present. The minutes of the January meeting were read and confirmed. (Owing to rain no meeting was held in February). As matters arising therefrom it was agreed that congratulations be sent to Mr. A. P. Hanson re distribution of seeds to the Branch. Correspondence was taken. Resignation from the Secretary of the Branch was tendered. The Assistant Secretary was advised to send him a letter expressing the gratitude of the Branch for his services which will long live in the hearts of the members. Mr. J. W. Douglas and Mr. Arthur Hasse gave two stirring addresses encouraging the Branch to press forward. A vote of thanks was accorded them. Roll Call was taken and the meeting rose with the singing of the National Anthem.

St. Peters P.O. F. A. Wilson,
Assistant Secretary.

ST. MARY: Baxter's Mtn.—This Branch met on March 20. with President S. W. Strachan presiding. The meeting was opened in the usual way. The minutes were read and confirmed. Correspondence was then read. Authorised Persons A. Strachan and J. Phillips reported "All Correct" and showed their implements in good order. Messrs. McLeary and Williams again visited the meeting and were heartily welcomed. The former addressed the meeting on Borers. He described the pest from the laying of the eggs up to the period when it starts its work of destruction. He also outlined the ways of detecting, trapping and destroying them. Mr. Williams spoke on Coffee. He advised the necressary precautions to get good coffee. The plants should be carefully taken up from the nursery and planted properly so as to secure healthy trees. Both addresses were well received and the speakers received the thanks of the meeting. Mr. Wray, the Instructor, who was in the district before noon, visiting holdings and pruning citrus in the School Garden as also coffee gave an address. Speaking also on the Borer and Coffee, he made additional remarks on those of the previous speakers. As for coffee, he advised the growing of Long Top variety. He sat down amidst the applause of the members. Three cheers were given for the addresses. The Instructor here bade good-bye to the Society as he is to take up work in another parish. The President and the Branch as a whole regretted his early removal but wished him all that's good and hoped to meet him again. The Roll Call showed 13 members, the Instructor, 2 visitors and the Secretary present. At the singing of the National Anthem the meeting terminated.

Annotto Bay P.O. R. J. Lawson Ricketts,
Secretary.

Lucky Hill.—Meeting held 20.3.34. Mr. T. A. Burke was voted to the chair; eight other members, the Secretary and the Instructor, Mr. L. A. M. B. Coke, and 3 visitors were present. Apology for absence was tendered from the Treasurer. The Secretary said that he was in correspondendce with the Inspector of Police for St. Mary in re Drop Pan, and he had an interview with the Sub-Officer in charge of the Gayle district and was pleased to report that the evil is on the decrease. The Secretary also read,

an invitation from the Wallingford Branch to attend an "Old Time" Tea Meeting and Social on the 5th of April. Two Authorised Persons present reported O.K. and one arrest, respectively. The Chairman intimated that this was the first meeting since the promotion of the Instructor and expressed the appreciation of the members in this matter and the hope that his services would still be retained in St. Mary The Instructor thanked the Chairman, for his remarks and confessed that his success was due to Western St. Mary. He then gave his usual address, on the Citrus Industry, top budding and budding of small trees, The different sorts of Grapefruit and Oranges to be planted and budded. Letter from the Rev. Ward re Juvenile Show to be held on the 1st August next was read. The Instructor hoped for a greater successes for the new financial year. Mr. Saunders brought a bundle of Wynne Grass, and the Instructor made a few striking remarks on it showing the usefulness of it to the soil. Six new members were enrolled. The meeting terminated with the singing of the National Anthem.

Lucky Hill P.O. F. WRIGHT GEOHAGHAN,
Secretary.

Mt. Regale.—Meeting held 2nd March. Present: Mr. S. N. Mitchell, President; F. E. White, 1st Vice-President, Mr. J. A. Banks, Instructor; 4 members, 1 visitor and the Secretary. Notes of November meeting were read and confirmed. The Secretary reported the receipt of cane-tops for the Branch. The general report on these was poor growth on account of the weather. The Instructor budded 4 Marsh seedless Grapefruit buds to a young sweet orange, as a remembrance of his last work for the Branch. He wished the Branch success and reminded members that this was his last official visit. The President on behalf of the Branch, expressed a sincere thanks to the Instructor for his long and useful service. The Branch proposes to secure a purse for the Instructor as a mark of their appreciation of his good and useful work. The meeting terminated by the singing of the National Anthem.

Mt. Regale P.O. T. H. HANNAM,
Secretary.

Wood Park.—Meeting held 14th March. Mr. E. L. Silvera, 3rd Vice-President; occupied the chair with sixteen other members present, including Mr. L. A. M. B. Coke, Instructor and the Secretary. The President, Mr. W. S. Robinson, attended later. The minutes of the last meeting were read and confirmed. Apologies for absence were received and sustained. Arising from the minutes the Secretary read reply from Colonial Secretary re non-payment of taxes. He was instructed to write and thank Colonial Secretary for same. He also read letter from General Secretary re appointment of Authorised Person Brown. The Secretary, as delegate, gave a report of the Half-Yearly General Meeting. He was thanked for same. The Instructor reporting on the Exhibition said the Branch had every reason to be proud of the part they played in the Exhibition. His district was the only one to join and make a collective exhibit. The Fancy Stall was outstanding and called for special comment and won at least three prizes. Then the yam sent from this Branch weighing over 200 lbs. came in for a great deal of attention. The preserves stall also did well and won prizes. The exhibits sent up won 17 prizes of which 9 or 10 were firsts. The Chairman thanked Mr. Coke and suggested that he gives a further report at the close of the Exhibition. The Secretary brought to the attention of the Branch Mr. Coke's promotion as Instructor for the parish and congratulated him; the Chairman added his congratulations, also Mr. Robinson. The Secretary was instructed to write the Board of Management appreciating their action and urging on them the necessity of allowing Mr. Coke to remain in this area until his work come to fruition. It was decided to send a letter of congratulation to Mr. Carrington on his promotion. At the request of the Chairman, the Secretary gave an outline of the proposed compulsory Banana Insurance Scheme. Mr. Robinsohn spoke on the subject and it was agreed to postpone this item for a special meeting to be held on Tuesday the 20th March. A new member was enrolled. Authorised Persons present reported "All correct." A pumpkin grown from seeds obtained from the Society was presented to the Branch by Mr. R. D. Palmer. The Secretary was asked to write and thank him and the pumpkin was divided amongst the members. The meeting adjourned.

Pembroke Hall P.O. C. L. A. STEWART,
Secretary.

WESTMORELAND: Darliston.—Meeting held March 16. Present were: Mr. C. J. Stewart, President (in the chair), Miss Mennell, 1st Vice-President; Miss A. Fowler, the Secretary and some other members. Meeting was opened with prayer. Minutes of last meeting were read and confirmed. Secretary read letter from the Westmoreland Parochial Board re providing a Pound for Darliston. Other correspondence was dealt with. Mr. James McFarlane, Authorised Person, reported an arrest. Other Authorised Persons reported "quiet" in their districts. Handcuffs and badges were shown in good order. The Secretary announced that the next meeting would be the annual one and asked members present to attend and to bring other members with them. The President gave his closing remarks. The singing of the National Anthem terminated the meeting.

Darliston P.O. A. A. McDONALD,
Secretary.

ST. CATHERINE: Top Hill.—Meeting held March 27. Among those present were: Mr. W. R. Wilks, President; Mr. O. P. Martin, Instructor; 9 members, 2 visitors and the senior pupils of the Top Hill School. The meeting began with prayer by the President. The minutes of the last meeting were read and confirmed. Arising out of the minutes, the President said it was time we reminded those in authority of the state of the Top Hill Road. It was decided that letters be sent to Messrs. Johnson and Gregory, members of the Parochial Board for this area, asking that the Board complete the road as early as possible as the people had done that portion that had been required of them, long ago. Correspondence was dealt with. Two Authorised Persons reported all correct. (A big demonstration was carried out on the same day on the pruning of coffee.) Mr. Martin in his address made reference to the benefits the children would receive by attending the meetings and encouraged them to help themselves by planting vegetables. He then spoke on the benefits of manuro and how to prepare and store it. After his address he very suitably answered the questions that was asked by members. A hearty vote of thanks was accorded Mr. Martin. Other business was dealt with and the meeting was brought to a close by the singing of the National Anthem.

Lluidas Vale P.O. E. M. JOHNSON,
Secretary.

James Hill—Meeting held 20.3.34. Present: Messrs. N. P. McKay, President; Z. F. Latty, 1st Vice-President; I. S. Constable, 2nd Vice-President; Ed. Latty, 3rd Vice-President; Ed. Anderson; Treasurer; A. B. Eason, Secretary, Instructor Shirley, six other members and the Assistant Secretary. The meeting was opened with prayer. The minutes of last meeting were read and confirmed, and matters arising therefrom dealt with. It was decided that a Social should be held at the end of the financial year; members to subscribe 2/6 each by Tuesday 3rd April. It was decided to invite Mr. W. Theo. McKay, Member of the Board of Management, to attend as a guest of honour. Instructor Shirley promised to assist with 10/- and invite Messrs. P. St. L. Bacquie and L. L. Carrington, Supervisors of Instructors. Mr. N. P. McKay promised to give 4/- and invite the Rev. C. A. Spencer and the Officers of the Nairne Castle Branch. A Committee consisting of Messrs. N. P. McKay, Z. F. Latty, A. B. Eason, Geo. Williams, Ed. Latty, I. S. Constable, R. Pinnock, Miss Alexander, Miss Beecher and Mrs. S. Latty was appointed to work up the Social. Correspondence was read and dealt with. Messrs. Z. F. Latty, E. Richards, Ed. Latty, Jas. Grant and I. S. Constable were appointed delegates to the meeting of the C.B.A. on the 27th April. The Roll Call was taken and the singing of the National Anthem brought the meeting to a close.

James Hill P.O. GEO. WILLIAMS,
Assistant Secretary.

Moravia.—Meeting held 6th March. Present: Rev. C. F. Smith, 1st Vice-President, Mr. M. N. Thompson, Agricultural Instructor, 20 members, three visitors and the Secretary. The meeting was opened with prayer by the Chairman. He welcomed the visitors and extended the courtesy of the floor to them. The minutes of the last meeting were read and after some corrections they were confirmed and matters arising out of same dealt with. Correspondence was read and discussed. The Instructor read a certain portion from a circular and explained how citrus fruits should be bought and handled so that the fruits reach their destination in very good condition. Mr. M. Bent asked if citrus can be planted in the diseased places. The Instructor said he would have to consult the authorities and get their consent. The question of lands for the small cultivators who are willing to work and cannot get lands, provoked a healthy discussion and some members mentioned large and fertile properties suitable for cultivation in some parishes that are idling with only a small number of cows running on such properties. The Instructor delivered a rousing and appreciative address, and a hearty vote of thanks was accorded him. After some important matters were dealt with, the Chairman asked the members to attend the Annual Meeting in April next after which a lively meeting adjourned with the National Anthem.

Movavia P.O. J. S. WALLACE,
Secretary.

ST. ELIZABETH.—Kilmarnock.—Meeting held 12th March. After the reading and confirmation of the minutes, matters arising therefrom were dealt with. The Instructor expressed disappointment at the neglected condition of the nursery. It was arranged that all should turn out on the 16th to do the necessary work. Letter from the Inspector of Police stating that the request from the Branch for the visit of a Police Corporal would receive attention was read and noted. A letter from the Secretary of the Associated Branches, stating that the Government Stock Farm wanted a supply of clean dry corn, was submitted. It was regretted that there was none available. The Roll Call showed present: Instructor Graham, Supervisor, Mr. Bacquie, 18 members and 4 visitors. Authorised Persons reported "all correct." Mr. Bacquie gave a very rousing and interesting address.on tomatoes, peas, string beans, corn and also the careful handling of citrus, that the Association will be expecting from the grower. A very large turnip

was taken from the School garden to show what manure can do. The address was greatly appreciated by all, and the sincere wish of all is that Mr. Bacquie should visit us as often as possible. Instructor Graham gave his farewell address expressing his regret at leaving so early and stating that his interest will still be with the Branch. He hoped the Branch would grow to be one of the largest in the parish. The Secretary read an address regretting to part with the Instructor and stated that all benefitted by the strenuous work he had done. Good wishes were also expressed for Mrs. Graham. Instructor Graham replied very suitably. After a few remarks by the Chairman the meeting closed with the National Anthem.

New Market P.O. J. E. MONTEITH,
Secretary.

Malvern.—Meeting held 2nd March. Mr. T. M. Fagan, 1st Vice-President, presided. Present: Mr. P. St. L. Bacquie, Supervisor of Instructors, ten members, one visitor and the Secretary. The minutes of last meeting were read and confirmed, and matters arising therefrom dealt with. Mr. E. Jones, spoke about spraying, and suggested that the Branch, procure a spray and the members do their own spraying and not depend on the Agricultural Instructor. It was decided that the matter be discussed at the next meeting. The Treasurer being away, Miss E. I. Blake was appointed to act in that capacity. Mr. Bacquie was asked to speak on scale insects that infest cabbages. He advised that Paris Green be used to destroy cut-worms, and was heartily thanked for his talk. The next meeting was fixed for the 27th April and the meeting terminated with the singing of the National Anthem.

Malvern P.O. (MISS) E. I. BLAKE,
Secretary.

Newmarket.—On Sunday the 18th March, the New Market Branch gave a "send off" to their Instructor, Mr. Graham. The function took place at the J.B.S.S. Hall. There were many members of the Branch and their friends present. Mr. Thos. Fisher took the chair. Messrs. Thos. Cowan, H. Cunningham, J. Monteith and H. Vassel all gave inspiring addresses and expressed great regret at the departure of Mr. Graham. The Instructor replied giving a short address, and thanked the members for their kind addresses, and regretted his departure. The meeting came to a close with the National Anthem.

Newmarket P.O. T. A. FISH,
Assistant Secretary.

MANCHESTER: Devon Potato Growers' Association.—Meeting held 2nd March. Present: Mr. H. A. Mendes, 2nd Vice-President in the chair, Mr. A. J. Hay, 1st Vice-President; eight other members, Mr. M. N. Thompson, Agricultural Instructor, four visitors, and the Secretary. The meeting started with prayer, after which the minutes of the previous meeting were read and confirmed, and matters arising from them were given attention. The Authorised Person, Mr. Jacob White, reported "all correct" in his district, and signified his intention to resign. The Instructor made the suggestion of having a Juvenile Society formed in connection with the Branch. He showed the advantages of such a Society, and asked that a Committee be formed to go into the matter. He was supported by several members. The following were asked to serve on the Committee: Messrs. J. A. Whylie, President, Mr. C. Roach, Secretary, H. E. Gayle, Q. N. Thomas, W. A. Mullings, A. J. Hay, H. A. Mendes, and Mrs. Catherine Waite. The Instructor gave a demonstration in budding. He explained carefully and clearly the various stages, and answered many questions asked by members. For this he was heartily thanked. Mr. Mendes gave notice of motion for a resolution affecting certain phases of the citrus industry. This will be placed on the agenda for the next meeting. Other business was carried through, and the meeting adjourned after the singing of the National Anthem.

Mile Gully P.O. H. E. GAYLE,
Secretary.

Fairfield.—Meeting held March 15, with the Vice-President in the chair and 9 members including the Secretary and the Instructor. The meeting was opened with prayer and the minutes of the last meeting were read and confirmed. One Authorised Person reported all correct, after which the Instructor apologised for being absent from the last meeting owing to the breaking of his car spring on the road. He then gave a masterly and at the same time a very interesting lesson on the care of 'short top' and 'long top' coffee, using the blackboard to illustrate his lesson. He explained in detail how, why and when the pruning of coffee should be done. He then finished up by demonstrating what he had said on a few trees in the School Garden. He was heartily thanked for such a fine lesson.

Lincoln P.O. H. H. WILLIAMS,
Secretary.

Mile Gully.—Meeting held 23.3.34. Minutes of the previous meeting were read and confirmed. As arising out of the minutes, there was much discussion on praedial larceny and several members spoke of their loss in ground provision. The Instructor stressed the matter of the activity of the Authorised Persons and advised to be busy and alive to their duties. He also advised all members to make special effort to subscribe

to the (Spray) "Pump Fund" and also to raise funds to secure a saw and shear for the use of the Branch. Correspondence was taken and fully discussed. One Authorised Person reported much praedial larceny in his district. The Instructor advised that spraying should be done when the fruit is set and onward, but no spraying should be done when the trees are in blossom. He also gave valuable hints on "Black Fly" being attacked and destroyed by the "Eddy wasp" which is a sure check and control of the pest. There were present: The President, 1st Vice-President, Secretary and several members. Meeting terminated with the singing of the National Anthem.

Mile Gully. P. A. Morris, Secretary.

Old England.—Meeting held 27th March. Present: Mr. J. T. Gordon, 1st Vice-President; who took the chair; 5 other members, the Instructor, Mr. H. A. Darby and the Secretary. Mr. Darby was in the district early in the day visiting members' holdings and giving demonstrations both on citrus and coffee pruning. The meeting was opened with prayer, after which the minutes of the last regular meeting and of a special meeting were read and confirmed. As matters arrising out of the minutes, the Instructor asked if the shear is being made use of; the Secretary explained. The Chairman suggested that the shear should be given to members for two days at a time and should there be no other application at the end of that two days, the said member could get it again if he needed it. The Instructor urged the members to use the shear for pruning their coffee and citrus trees, especially citrus, as by pruning, the fruits are saved from damage by thorns, and the pruning causes the trees to improve and bear more. He spoke much about the care of citrus trees and also about stem end rot. Re spraying, the Instructor explained that Bordeaux Mixture was a fungicide, and Emulso an insecticide; he explained the way that Bordeaux should be mixed. Correspondence was taken. The Instructor gave sketches of short top and long top coffee trees on the blackoard, and explained the way the trees should be kept and pruned from time to time. A vote of thanks was accorded him. The Roll was called. The singing of the National Anthem brought the meeting to a close.

Old England P.O. C. P. Watson, Secretary.

Snowdon.—Meeting held 13th March. Present: H. E. Lewis, Esq. President; Instructor H. A. Darby, 7 other members and the Secretary. (A rainy afternoon caused so small an attendance.) The minutes of last meeting were read and confirmed. Arising therefrom, methods of potato planting were discussed. The Agricultural Instructor promised to procure the required information for inaugurating the Juvenile Branch in connection with the Branch here. Much pleasure was shown by members at the Instructor's statement that he had introduced the "Eddie Wasp" in these parts. He showed these insects on a citrus tree near by and explained that the noticeable cleanness of the new foliage on the trees was due to the activities of the "Eddie Wasps" against the Black Fly. The Treasurer in his financial statement showed that the Branch was still on the right side. Members were pleased to hear that the General Secretary promised to visit this Branch at at early date. The meeting ended with the National Anthem.

Newport P.O. Fred. H. Jones, Secretary.

TRELAWNY: Ulster Spring.—Meeting held 12th March. Rev. J. A. Edwards presided. The Instructor, Mr. F. W. Kelly, was among those present. Owing to bad weather conditions the attendance was small. The President opened the meeting with prayer and then made a few remarks in welcoming those present. The minutes were read and confirmed and matters arising discussed. The Instructor gave a very practical and educative address on increased membership, deep forking, and proper trenching. He was given hearty thanks. Mr. H. L. Currie was nominated an Authorised Person. The meeting adjourned after the singing of the National Anthem.

Ulster Spring P.O. I. C. Williams, Secretary.

Wakefield.—Meeting held March 6th. Present: Rev. R. A. L. Knight, President; Mr. C. R. Browne, 1st Vice-President; the Agricultural Instruetor, Mr. F. W. Kelly and several others. During the day the Instructor demonstrated at the School Garden and Mr. Wm. Ainsworth's holding. After the usual opening the Chairman extended a hearty welcome to the Instructor. The minutes of the last meeting were read and dealt with. Correspondence was read and discussed. It was announced that the Penny Bank Accounts would be audited March 12. The Instructor addressed the meeting on poultry and stock notes and on the fertility of the soil. He promised to continue the lecture at the next meeting. The Chairman gave a short address. The next meeting day was fixed for April 2nd. The meeting adjourned.

Wakefield P.O. E. S. Bliss, Secretary.

Other Reports Received.

Branch.	Date of meeting.	Attendance.	Business.	Secretary.
St. Mary				
Albion Mtn.	1.3.34.	8	Finances. Road. Registration office; Giant Plantain cultivation.	J. H. Petrie.
Carron Hall	7.3.34	Over 20	Discussion on "Planting." Demonstration Plot.	H. A. Whylie.
Central St. Mary.	1.3.34	—	Presentation of address and souvenir to retiring Instructor Banks—Address by Mr. L. L. Carrington. Remarks by Mr. Banks.	C. C. Leeth.
Labyrinth ..	21.3.34	9	Post Office. Juvenile Vegetable Competition. Address by Instructor Coke.	A. P. Atkinson
Marlborough	27.3.34	13	Finances— Address by Mr. E. S. Bent.	D. A. Ford.
Wallingford ..	9.3.34	16	Appointment of District Constable; Pruning and Trenching of Bananas. Address by Mr. L. L. Carrington.	Acting Secretary
St. Ann.				
Bohemia	22.2.34	..	Branch of Savings Bank. Authorised Persons. Poultry rearing. Address by Instructor Kelly.	V. C. Robinson.
Trelawny.				
Deeside .	7.3.34	17	Local Show. Giant Plantain. Vegetable cultivation. Cane plants. Address by Instructor Kelly.	A. O. E. Wright.
Bunker's Hill ..	8.3.34	9	Marketing of Citrus, Coffee and Bananas. Address by Instructor Kelly.	P. H. Brown.
Wilson's Run ..	13.3.34	.	Pound.: need for District Constable. Coffee. Address by Instructor Kelly.	G. E. Bailey
Clarendon.				
Crooked River	9.3.34	24	Wet sugar boiling houses, etc. Plan of year's work. Address by Instructor Shirley.	A. M. Smith.
Crofts' Hill ..	8.3.34	17	Water Supply. Citrus Industry. Authorised Persons.	A. I. Williams
St. Catherine.				
Ewarton ..	8.3.34	.	Citrus nursery. Address on Citrus by Mr. Chas. Cumming.	W. B. Leslie
St. Thomas.				
Hagley Gap ..	23.3.34	..	Authorised Persons. Rat Poison. Presentation to Mr. Wates.	J. B. Heywood
St. Elizabeth.				
Springfield	2.3.34	21	Road. District Nurse. Small Stock. Farewell to Instructor Geo. Graham.	J. A. Woodstock
Portland.				
Tranquility	12.3.34	..	Purchasing of bananas by weight. Reports of delegates to Half-Yearly Meetings. Address to Instructor Wray.	N. W. McClery

THE JOURNAL

OF THE

Jamaica Agricultural Society.

The more people do the more they can do; he who does nothing renders himself incapable of doing anything; while we are executing one work we are preparing ourselves for undertaking another.

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BOARD OF MANAGEMENT.

The regular monthly meeting of the Board of Management of the Jamaica Agricultural Society was held at the office of the Society, 11 North Parade, Kingston, on Wednesday the 4th April, 1934, at 12 noon. There were present: Hon. T. J. Cawley, First Vice-President, in the chair, Rev. W. J. Thompson, Second Vice-President, Hon. A. C. Barnes, Director of Agriculture, (*ex officio,*) Messrs. Sidney Barton, C. O. Cover, H. E. Lewis, T. P. V. McDaniel, U. Theo. McKay and W. Harper Watson, Mr. P. St. L. Bacquie, Supervisor of Instructors and the Secretary, Glaister Baxter.

Apologies for Absence.

Apologies for absence were tendered by the Secretary from Major G. B. Pease and Messrs. T. R. Williams and W. H. W. Westmorland.

Confirmation of Minutes of the previous Meeting.

The Secretary stated that the minutes had been circulated only that morning.

Mr. U. Theo. McKay then moved, seconded by Mr. W. Harper Watson, that they be taken as read, and this was agreed to.

Mr. McKay moved, seconded by Mr. Lewis, that the minutes as amended be confirmed.

This was carried.

Matters arising out of the previous Minutes.

(a) *Statement by Secretary.*—The Secretary made the following statement:—

Gentlemen,

I beg to advise that arising from the minutes:

(i) Mrs. Barclay was advised in the terms of the resolution of the last meeting.

(ii) The four Assistant Agricultural Instructors elected at the last meeting were advised of their tentative appointments and have accepted the positions. They have been instructed to report to the Director of Agriculture at Hope and did so on the 3rd instant for training.

(iii) Correspondence re the Provident Scheme has been forwarded to the Hon. Colonial Secretary.

(iv) With reference to your disapproval of Direct Members for Branches Associated, the Secretary of the St. Elizabeth Branches Associated wrote stating dissatisfaction with the decision.

(v) I am glad to be able to report that I am having quite satisfactory response from firms approached for free exhibits for the Royal Empire Society, Montreal, Canada.

(vi) The Tree Planting report has been forwarded to His Excellency the Governor.

Other routine correspondence arising from the minutes have been carried through.

The Secretary stated that he had received only that moment a letter from Mrs. Barclay which would arise from the minutes.

The letter was read, and the Board decided that it be not received, and that the Secretary be instructed to discuss the matter with Mrs. Barclay, affording her an opportunity of withdrawing the letter.

(b) *List of Debtors.*—The Secretary presented the accounts of various debtors of the Society, as instructed at the previous meeting of the Board.

(c) *Letter from C. S. O. re appointment of Mr. Carrington to Department of Agriculture.*—Letter from the C. S. O. was read as follows:—

No. 1697/34. 27th March, 1934.

"In continuation of the letter from this office dated the 5th March, 1934, I am directed by the Governor to inform you that His Excellency has approved of Mr. L. L. Carrington, of the staff of the Jamaica Agricultural Society, being transferred to the Department of Agriculture to perform duties in connection with the Citrus Nurseries and Planting Scheme, with effect from the 1st April, 1934, with salary at the rate of £400 per annum and travelling allowance at the rate of £210 per annum.

(Sgd.) A. S. JELF,
Colonial Secretary.

The letter was noted, the Board acquiescing to the arrangement.

(d) *Letter from Miss Hilton.*—Letter from Miss Hilton, thanking the Board for their letter of condolence, was read and noted.

Statement of Accounts.

(a) *Statement for February.*—The Secretary stated that the statement of Accounts for February had been included in the minutes of the last meeting of the Board.

(b) *Statement for March.*—The statement for March was submitted as follows:—

STATEMENT OF ACCOUNTS, FOR MARCH, 1934.

Receipts.	Estimates. £	s.	d.	Total. £	s.	d.
To Subscriptions	150	0	0	160	15	3
Affiliation and Journal Fees	150	0	0	154	10	0
Advertisement in Journal	150	0	0	141	2	3
Sundries: Bank Interest, etc.	20	0	0	29	9	4
Government Grant	8,500	0	0	8,500	0	0
Appropriation from Sales Department Surplus	1,731	0	0	..		
	£10,701	0	0	£8,985	16	10
Balance from 31st March, 1933				2,982	10	1
Prize Holdings Competitions				252	19	0
Beekeeping Industry				609	11	2
Show Deposits				10	0	0
Fees for use of Show Equipment				1	1	0
Nethersole Presentation Fund				8	18	0
Refunds of Advances				546	0	0
Donations for Local Competitions				1	1	0
Refund of Imprest for Postages				1	0	0
Seed Trading Account				4,461	5	8
				£17,860	2	9
Less Expenditure per Contra				15,982	18	1
Balance				£1,877	4	8
Cash in hand (since lodged)	£250	18	2			
Cash at Barclay's Bank Current A/c	151	10	2			
Cash at B rclay's Bank, Deposit A/c	450	0	0			
Cash at R yal Bank of Canada Current A/c	110	18	10			
Cash at Royal Bank of Canada Deposit A/c	913	17	6	1,877	4	8

Expenditure.	Estimates. £	s.	d.	Total. £	s.	d.
By Personal Emoluments:						
Secretary and Office Staff	1,847	0	0	1,910	18	0
Instructors and Supervisors	7,385	0	0	7,256	4	4
Instructors' Course at Hope	125	0	0	122	18	2
Instructors' Contingencies	100	0	0	114	13	4
Secretary's Office, and Special Travelling	25	0	0	59	3	3
Printing and Stationery	100	0	0	117	15	11
Printing and issuing Journals and Reports	725	0	0	722	13	5
Rent and Rates	58	0	0	58	0	0
Rent of Telephones	15	0	0	17	2	0
Office Furniture: Repairs	10	0	0	3	14	9
Postages and Telegrams	10	0	0	11	1	0
Incidentals	50	0	0	57	2	6
Auditors' Fees	25	0	0	25	0	0
Books for Library	10	0	0	10	8	2
Experiments	205	0	0	39	4	6
Subn. to Horace Plunkett Foundation	1	0	0	1	0	0
Show Equipment Repairs	10	0	0	4	3	3
	£10,701	0	0	£10,531	2	7
Prize Holdings Competitions				139	4	9
Refund of Show Deposits				10	9	9
Beekeeping Industry				605	8	4
Advances to Instructors				546	0	0
Local Competitions				6	3	0
Furniture and Fixtures				19	13	0
Seeds Trading Account				4,124	16	8
				£15,982	18	1

(Sgd.) Donald MacDonald,
Accountant.

(Sgd.) Glaister Baxter,
Secretary.

Questions.

(a) *Mr. McKay re Agricultural Headman.*—Questions were asked by Mr. McKay and answered by the Secretary, as follows:—

Questions.

1. What steps are being taken by the Secretary and Supervisors to engage the services of three Agricultural Headmen as determined by the Board of Management to take up work on April, 1, 1934?
2. To what districts will they be assigned?
3. Have such districts been defined and what is the area of each as defined?
4. If any of the above answers is in the negative will the reason or reasons be given?

Answers.

1. None up to now.
2. See answer to question 1.
3. See answer to question 1.
4. Until the Government subvention to the Jamaica Agricultural Society is authorised by the Legislative Counci. it is considered unwise to definitely make these financial commitments.

With regard to assignments to districts and defining of areas for their operations these matters will be considered by the Special Committee for planning Instructors' work for 1934-35, and their recommendations will be reported to the Board of Management for their approval or otherwise at the May meeting of the Board.

Mr. McKay then asked if the four Assistant Instructors had not been appointed as from the 1st of April, 1934.

The Secretary stated that the appointments had been made contingent on the authorization of the Society's Government subvention by the Legislative Council and the Instructors so advised.

Resolutions.

(a) *Mr. McKay re Expansion of cane farming.*—Mr. McKay moved the following resolution:—

> "That due to the menace of Panama Disease immediate steps be taken by the Board of Management of the Jamaica Agricultural Society to encourage and expand the industry of cane farming among small settlers."

He then spoke and read a memorandum dealing with the objects of the resolution.

The Chairman seconded the resolution and outlined what he had done in St. Thomas-ye-Vale in the same matter, and advised Mr. McKay to gather the facts and figures affecting his area and then application could be made for benefits from the quota expected from the mother country.

Mr. McDaniel and the Hon. Director of Agriculture spoke along the same lines.

The matter was further discussed and the resolution unanimously carried.

The Board then adjourned for luncheon.

On the resumption there were present:—Hon. T. J. Cawley in the chair, Rev. W. J. Thompson, Hon. A. C. Barnes, Director of Agriculture, Messrs. McDaniel and McKay.

Instructors.

(a) *Report of March meeting of Committee.*—The Secretary read the following report:—

To the Board of Management:

Gentlemen,

Your Instructors Committee sat on Wednesday, March 7th, 1934, at 10.30 a.m. and recommend as under:

That the offer of the Hon. G. W. Muirhead, of Clarendon, of free land for a vegetable plot in Mid-Clarendon, which was outlined in a letter to us from Instructor Shirley, be referred to the special Committee for planning Instructors' work.

Letter from Mr. E. R. Wainwright, of Westmoreland, asking certain questions with regard to the duties of Instructor Graham there, and implying that the Instructor was pushing the cause of someone in the forthcoming General Election, was considered.

The Committee considered information from Supervisor Bacquie on the matter and directed the Secretary to reply to Mr. Wainwright that they were of the opinion that no dereliction of duty took place on the part of Instructor J. A. Graham, and that the matter be dropped.

Your Committee granted leave to Instructor G. R. Graham for the month of April, and to Instructor Maxwell, due to illness, for the month of March, on full pay.

Letter from the Hon. Director of Agriculture, suggesting that prizes be offered for the best small holder's vegetable cultivation, with a view to encouraging the growing of certain vegetables for export, was considered.

The Committee recommends that this also be referred to the Special Committee for planning Instructors' work.

Supervisor Bacquie brought to the attention of the Committee the increase of his area by the addition of certain areas of the Christiana District.

Your Committee decided to take no action in the matter.

Estimate of removal expenses from Instructor Wray was referred to the First Vice-President to be dealt with.

Further application from Instructor Buckley, inviting the Committee to consider a gratuity for him on retirement, was considered.

The Committee recommends that this matter be taken up along with similar matters with the Provident Scheme.

(Sgd.) GLAISTER BAXTER,
Secretary of the Committee.

Mr. McKay moved, seconded by the Rev. Mr. Thompson, that the report be adopted.

This was carried.

The Chairman then asked for the suspension of the standing orders

so as to deal with the more important matters discussed at the meeting of the Instructors Committee that morning.

The following report was then presented:—

To the Board of Management:

Gentlemen:

Your Instructors Committee sat this morning and beg to recommend for your immediate approval the following:—

That the following recently appointed Agricultural Instructors be assigned as Assistants, to districts as under:—

Mr. Jones to the Instructor for Portland.
Mr. Virtue to the Instructor for St. Elizabeth.
Mr. Byles to the Instructor for St. Catherine.
Mr. Henderson to the Instructor for St. Mary.

and that the whole time Government officer be assigned to the Instructor for St. Andrew.

Your Instructors Committee requested the Director of Agriculture to second Mr. Miller as the whole-time Government officer of the Society to which he agreed.

Your Committee recommends to the Board that the loans applied for by Instructors aggregating £435 be granted. Your Committee considered representations made by the Secretary with regard to the progressive reduction of the surplus of the Society and on this account recommend that these loans be granted for only eight months to be repaid by equal monthly instalments and also that the Instructors be advised immediately that it will be impracticable in the future to grant further loans.

The Board received the report and after discussion, it was decided that no definite area be assigned to Mr. Miller until the report of the Planning Committee is received by the Board.

Mr. McDaniel moved, seconded by Mr. U. Theo. McKay, that the report, other than the recommendation contained with regard to Mr. Miller, be adopted.

Office.

(a) *Report from Secretary re Travelling for March.*—The Secretary presented his report on travelling done during March.

This was noted.

(b) *Filling new vacancy.*—The Secretary brought to the attention of the Board that there was a vacancy for a Junior Typist.

He was authorised to make the necessary appointment.

(c) *Temporary vacancy.*—The Secretary also pointed out that on account of Miss Hilton's illness it would be necessary to obtain some temporary assistance.

He was authorised to do so.

(d) *Advertisements in Journal.*—The Secretary brought to the attention of the Board that Mr. Crearer, Seed Clerk, had at his suggestion busied himself in canvassing advertisements and had obtained up to date, £201 of new advertisements, and he was asking that some definite basis of remuneration be considered for members of the staff obtaining advertisement for the Journal.

The matter was discussed and the Board approved of payment to Mr. Crearer of £10 as recognition of his services in the past, and approved of payment being made in future to any member of the staff under the rank of Secretary at the rate of 5% commission on adver vertisements obtained for the Journal.

Communications.

(a) *Letter from Mitchell's Hill Branch re visit of Secretary.*—A letter was read from the Mitchell's Hill Branch, asking that the Secretary visit their district on the 19th April.

The Board authorised the visit if convenient to the Secretary.

(b) *Invitation from St. Thomas Branches Associated.*—Letter from the Secretary of the St. Thomas Branches Associated, inviting members of the Board of Management and the Secretary to attend their Half-Yearly Meeting on Saturday, the 26th May, was read.

The Board noted this and approved of the Secretary attending.

Mr. Lewis came in and took his seat.

The Chairman apologised for having to leave, and moved that the Hon. Director of Agriculture take the chair.

The Director moved that Mr. McDaniel take the chair.

Mr. McDaniel seconded Mr. Cawley's motion which was carried.

The Director of Agriculture took the chair.

Mr. Cover came in and took his seat.

Diseases of Plants and Animals: Insect Pests.

(a) *Panama Disease of Bananas—Monthly Report.*—The summary of cases of Panama Disease of Bananas for February, 1934, was placed on the table.

The report was discussed and the Director of Agriculture outlined steps for soil study in connection with the matter and the encouragement of alternative crops. He also stated that there were many angles to the question and these were being dealt with by the Advisory Committee on the Citrus and Banana Industries.

The Secretary was instructed to circulate the report.

Industries.

(a) *Beekeeping: (i) Report of Committee meeting.*—The following report from the Bee Industry Committee was presented:—

To the Board of Management:

Gentlemen,

Your Bee Industry Committee sat on Wednesday, 7th March, 1934, and report as follows:

The question of the missing receipt and counterfoil, No. 85, from the receipt book in custody of the Bee Instructor was considered. Statements were made by the Secretary and by the Accountant and a letter of explanation from the Bee Instructor was read.

The Committee recommends that Mr. Coote's explanation be accepted as they feel that the loss of the receipt was genuine.

The Hon. Director of Agriculture made representations to the Committee as to a proposed regulation to permit the transhipment of honey and beeswax from Canada to British Honduras through the port of Kingston.

The Committee recommends that the Board endorse the regulation giving effect to the transhipment between Canada and British Honduras via the port of Kingston, of honey packed in 7 lb. hermetically sealed tins, guaranteed free from leaks, to be put up in 56 lb. cases, and beeswax in 14 lb sealed tins.

The question of the condition of the honey being exported from Jamaica was also considered and your Committee decided that the matter should further be considered.

(Sgd.) GLAISTER BAXTER,
Secretary of the Committee.

The Chairman pointed out that there were three important items in this report, viz., the matter of the missing counterfoil, transhipment of honey and the condition of honey to be exported.

After some discussion the report was received and adopted.

(ii) *Instructor's Report for March.*—Report of the Instructor in Beekeeping was placed on the table, and the Secretary was instructed to circulate to the Bee Industry Committee as usual.

(iii) *Letter from Jamaica Chamber of Commerce and Merchants' Exchange.*—Letter from the Jamaica Chamber of Commerce and Merchants' Exchange, covering resolution passed by that Council, regarding the poor condition in which Jamaica honey arrived in the markets abroad, was submitted.

On the suggestion of Mr. McKay, the Board decided that this matter be referred to the Advisory Committee on the Agricultural Produce Law, and on the Chairman's suggestion, also to the Bee Industry Committee for their comments.

The subject of shipping honey in metal tins was briefly discussed.

Shows.

(a) *Islington (St. Mary, Juvenile) proposed for August* 1, 1934.—Letter from Mr. H. Ward, Secretary of the Islington Show Committee, asking for the reservation of the 1st August, 1934, for their Show, and requesting that as entries would be confined to the junior section of the community, all facilities be given free for this Show, was read.

The matter was fully discussed and on the suggestion of the Chairman, the Board agreed that the date for the Show be approved and the matter left open for further investigation by the Secretary.

Competitions.

(a) *Beeston Spring: Application for Grant of* £1 *for White Yam Competition.*—Application from the Beeston Spring Branch for a grant of one pound towards their White Yam Competition, and letter from the Instructor and Supervisor of Instructors for that section recommending same was presented to the Board.

The Board authorised the grant.

(b) *Holdings Improvement Competition: Report on judging in St Elizabeth.*—The Secretary presented report submitted by Instructo Lynch on the holdings judged in Instructor G. R. Graham's district.

The Board authorised payment.

Branches, Resolutions, &c.

(a) *Tranquility re services of Instructor Wray.*—Resolution from th Tranquility Branch, recording appreciation of the services of Instructc Wray, was presented.

The Board noted this with satisfaction.

Authorised Persons.

Nomination by J. L. Hopkins.—A letter nominating Ambros Cornwall for the position of Authorised Person by Mr. J. L. Hopkin Direct Member of the Society, was read.

After some discussion, at the suggestion of the Chairman, the Secreta was instructed to refer this nomination to the Branch Society in th area for its comments before recommending the nomination to tl Inspector General of Police.

New Members.

On the motion of Mr. McKay, seconded by Mr. Lewis, the followi were unanimously elected members of the Society:—

F. A. Jedele, Cockburn House, 114 Hagley Park Road, P.O. B 367, Kingston.
Mrs. S. C. Nethersole, "Swanswick," Clark's Town.
Mrs. Elsie E. Aris, Dint Hill, Linstead.
C. M. Arscott, Nutshell, St. Ann's Bay.
E. H. DaCosta, c/o Messrs. Ja. Fruit & Shipping Co., Kingston.
Moses Andrade, Cross Pen, Spanish Town.
C. E. Randall, Sunning Hill.
C. W. McHardy, Moneymusk Farm, Alley.
Miss R. Mornan, Friends' Training College, Highgate.
H. Czejka, Waldeck, 28 Miles, Costa Rica.
Dr. A. T. Clarke, Old Harbour.

Other Business.

(a) *Report from Committee re Comfort Hall Branch.*—A report from the Special Committee appointed to investigate the affairs of the Comfort Hall Branch, was presented.

Mr. McKay moved, seconded by Mr. Cover, that the report be adopted.

This was carried.

Mr. McDaniel moved that the gentlemen constituting the Special Committee be thanked for their excellent services in this matter.

This was seconded by the Chairman and unanimously carried.

The Secretary was instructed to furnish the President of the Branch with a copy of the report and to draw his attention specially to his duties in connection with better supervision of the affairs of the Branch.

Letter from Broadleaf Branch re Country Fires Law.—Letter from the Broadleaf Branch was presented, asking that the Country Fires Law be invoked in their district.

The Secretary was directed to take the necessary steps.

(c) *Bull for St. Elizabeth.*—The Secretary reported that the Hon. P. W. Sangster, accompanied by the Hon. T. J. Cawley and himself had visited the Stock Farm at Hope, and selected the bull to replace one which was previously in St. Elizabeth for stud purposes, and that he expected Mr. Sangster at the meeting that day, to arrange for the appointment of a stud master.

The Board decided that the matter should be deferred.

The Chairman drew attention to the completion of the Agenda and asked if any member would like to mention any other matter.

Cattle Industry.—Mr. McKay said he would like the Director of Agriculture to furnish a statement showing the cost to the penkeepers of Cattle Dip supplies from the Hope Laboratory in comparison with what could be obtained from commercial firms with a view of arriving at what extent the Cattle Industry was being subsidized by Government.

The Director of Agriculture stated that he did not think the Cattle Dip was being supplied at a loss to the Government, but he would endeavour to obtain the information required by Mr. McKay.

Produce Licenses.—Mr. Lewis asked whether it would not be possible to have Produce Licenses issued half-yearly, say in April and October.

The Director of Agriculture suggested that the matter would have to be referred to the Advisory Committee under the Agricultural Produce Law.

The Hon. Mr. Cawley joined the meeting just before the completion of the discussion.

The meeting adjourned to Wednesday, the 2nd May, 1934, at 11.30 a.m.

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SOME COMMON AILMENTS AND DISEASES OF ANIMALS.

By S. Lockett, Government Veterinary Surgeon, Jamaica.

Foreword.

In a series of articles under this title, I propose to deal with some of the more common minor afflictions and diseases which the small owner in particular frequently encounters in the care and management of his livestock.

As will be shown from time to time, some of these troubles are essentially of man's own making, such as saddle and harness sores, others are very intimately associated with the domestication of animals for man's direct benefit, others in large measure to what may be termed natural causes, such as climate, weather conditions, fodder plants, soil, others to the type of work required of the various species of farm animals (draft or pack work in horsekind, milk production in dairy cattle and goats, meat in our beef, mutton and pork animals) and lastly others to parasites and infectious organisms known collectively as disease-producing germs or microbes.

Although the stockman's success is necessarily limited by many conditions and circumstances of climate, weather, fodder and pasturage, natural water supply, nature of the soil (dry and well-drained as against a damp, cold non-porous soil), elevation and all other natural features of the locality in which he lives or works, yet to a very large extent he may, by thought, study and endeavour, become the Master of his Fate.

In all matters of animal husbandry much can be accomplished by individual effort, but infinitely more may be achieved by co-operation and united effort in regard to the commercial aspects of the industry as well as the eradication and control of diseases.

In the establishment and maintenance of all agricultural undertakings (animal and plant) in a country, there is great need for a well-directed policy in such matters, otherwise the whole effort is easily dissipated, general confusion follows and chaos results. An ill-directed agriculture reduces a country to poverty; a sane, sound and stable system creates wealth.

The Department of Agriculture and the Jamaica Agricultural Society are definite partners in the big and important task of developing the agriculture of the Island. Progress is ocassionally fast, more often slow, because difficulties and set-backs are frequent and discouraging. Knowledge is essential in this industry if success and satisfaction are to be attained. All agriculturists may make contributions to the common store of knowledge and thereby assist in the establishment of a better plant or animal husbandry in the Island.

I.—Some Digestive Diseases.

This group of diseases is of very common occurrence in livestock, especially so among the new-born.

The reason is evident. New-born animals of all classes, for variable periods after birth, are undergoing a very definite and taxing change in their life. Before birth their digestive tract was virtually inactive, but immediately after they are "dropped," it is called upon to perform strenuous work and to furnish the elements of nutrition essential to the maintenance and development of the body.

In order that they make a good start nature has provided them

either with a reserve of food for temporary use, as in the unabsorbed yolk of the egg in the abdomen of the chicken (it helps to feed the chick for 7-10 days after hatching) or a fluid known as milk, secreted by the mammary glands of their mothers in the case of all mammals. This fluid is a wonderful substance in many respects, in that it not only contains water (very necessary for all forms of plant and animal life), but also the prime requisites for the proper nutrition of the young animal's body, and further in the exact proportions necessary for the highest well-being of the young. For this reason milk is the ideal food for the young, and the milk of each species or kind of animal is better suited to its own offspring than the milk of any other species. In other words, cow's milk is the best milk for calves, mare's milk for foals, etc. In unusual circumstances and in many of our artificial methods for rearing young animals (particularly calves in the dairy business), we resort to unnatural or artificial methods of feeding, but our success is entirely dependent upon how closely we follow the natural method in every detail.

1.—Diarrhoea.

This condition is so well known that it hardly needs a description; suffice it to say that it is very accurately named from its characteristic indication of flowing through, and means a morbidly frequent and fluid discharge from the bowels.

The stomach and intestines of animals are lined on the inside with a coat (mucous membrane) which is very much like the inner lining of the nose, throat and air tubes of the lungs. When for any or various reasons this inner lining is irritated and becomes inflamed, it immediately begins to exude an abnormal amount of a viscid fluid known as mucus, hence the "running" of the nostrils when we catch a cold or inhale smoke or other irritating fumes. In the same way, diarrhoea may be traced to some form of irritation or disturbance of the inner lining of the stomach and intestines, the latter in particular. As a result of irritation, there is a continuous and excessive production (secretion) of a watery mucus throughout the great length of the bowels and a filling of the canal with exuded fluid. This acumulation of fluid stimulates the bowels to empty themselves frequently, and, unless the process is checked, the food ingested is flushed out before it has been digested and its nutritive elements have been absorbed in the body. Consequently continued diarrhoea soon leads to the starvation of the patient, although it is being fed. The appearance of diarrhoea-afflicted stock is clear evidence of the real effect of the disease-process. Such animals have a woe-begone appearance, sunken and weary eyes, little or no strength and they lose flesh and weight very rapidly.

The causes of diarrhoea are too numerous and varied for a short article on the subject, therefore reference will be made only to some of the commonest and most important, such as:—

(i) Improper feeding, (ii) Dampness and cold, (iii) Special infections.

Improper Feeding.

(a) In a state of nature the offspring of all our farm animals immediately after birth desire to suck and when this is done they lie down and rest for 3 or 4 hours, usually in a secluded place chosen by the dam. When they suck they do not gorge themselves with milk, a thing that is seldom seen, except in the artificial rearing of calves, when they are fed or are permitted to suck after long periods of starvation (8-12 hours). Gorging or overfeeding is very harmful to digestion, especially in

very young animals. It is virtually an overloading of the machinery and produces a partial paralysis or stoppage of the digestive functions. As a result there is an accumulation of undigested food material in the digestive canal, which quickly undergoes chemical changes (fermentation and putrefaction), which are irritants to the mucous membrane of the stomach and intestines and veritable poisons to the body. Hence the necessity for purgatives and liver salts in cases of indigestion. Such irritants induce an inflamed condition of the mucous membrane and cause it to behave much as the lining of the nose in the cases of "cold in the head." This is really the early stage in diarrhoea. Such a condition of the bowels further produces no desire for food, depression of spirits, spasms of pain, especially if there is much fermentation with gas-formation, and as it increases in severity a hyper-activity of the bowels, shown by frequent evacuation of bowel contents, straining and in advanced or very acute cases bloody discharges. Physically the patient is soon an abject-looking object, fallen-in at the flanks, dejected in appearance weak and of a cold clammy skin. It has in truth received a serious injury in one of its vital parts or systems.

This review indicates the precautions that should be taken in respect of the quantity and times of feeding in artificial or bucket-milk methods of rearing calves or orphans of other animals.

(b) In the natural state the young get their milk directly from the mammary glands by sucking. In so doing they make a very effective coupling between the teats and their digestive canal. Consequently the milk passes from the milk cisterns at the base of the teats directly to the stomach—the first part of the alimentary canal—where it is held for some 4 or 5 hours before it passes to the upper portion of the intestines. By this means of conduction the milk is protected *en route* against the impurities harboured in dust, dirt and manure, and consequently reaches the stomach in a cleanly condition and not in the contaminated state of milk allowed to remain uncovered in the milking pen or stable.

In addition, the milk is supplied at the right temperature for the offspring, namely, the body temperature of the dam.

For these reasons we generally find that the young of animals reared by their own mothers and following their natural instincts are seldom affected with serious bowel disorders.

Milk drawn and kept in an uncleanly manner soon becomes sour or putrid, and in such condition will cause severe digestive disorders. The colder it is kept the less rapid are the harmful changes that take place in its elements; but when ready for feeding it should be warmed to the body temperature of the calf or other animal (about 100 degrees F.)

(c) It is a regular practice to rear calves on skimmed or separated milk, which has had virtually all its fat or cream removed. The extraction of the fat or cream definitely reduces the food value of milk, and by altering the proportions of its other ingredients (proteins, sugars, mineral matter) makes it no longer the perfectly "Balanced food" which nature intended for young mammals. The reason for this interference with things by man is the high commercial value of milk fat or cream for butter-making. Accordingly the good diary man when rearing his calves artificially feeds whole-milk (just as produced for the first month after their birth. He realises that their digestive apparatus is so delicate and susceptible to disturbance that he will take no chances. After a month and as the digestive organs develop, a change of diet may be made, but always gradually. The general practice is to gradually increase the quantity of milk fed by the addition

of skimmed milk, then after a week, whilst feeding the same daily quantity, reduce the amount of whole milk and make up the deficiency with skimmed milk. It should be remembered that all sudden changes in the food of animals, especially in their earliest days, should be made slowly. Even adult animals may be upset by sudden and great changes, e.g. when corn is suddenly substituted for oats in feeding horses or mules, sudden changes from hay to green pasture feeding.

If attempts are made to rear calves from birth exclusively on skimmed milk (a very ill-advised procedure for the first 3 or 4 weeks of their life) it is imperative that the lacking milk fat taken from their natural milk be supplied in the form of a substitute. For this purpose, nothing better has been found than the oil or fat in linseed. For some reason the oil of cottonseed, coconut, etc. is not as acceptable to the digestive system of our farm animals. This linseed oil or fat is best supplied in the form of slightly sweetened and salted linseed meal gruel mixed with the bucket-milk, or, after the calves are a month old, as ground linseed in their feeding boxes, plain or with some soft chopped grass or other fodder.

Linseed meal gruel is easily prepared by bringing 12 quarts of water to the boil and gradually adding with constant stirring 1-1½ pints of ground linseed meal according to the thickness of the fluid desired. *When thoroughly mixed it should be boiled for 30 minutes* and when removed from the fire two tablespoonfuls of salt and 4-6 tablespoonfuls of sugar may be added. Half to one pint of this according to the calf's age may be added to the milk assigned to each calf at each feed (usually twice daily).

The fats ingested (milk fat or linseed oil), combine with the bile or gall produced by the liver to make a soapy fluid which materially aids in the normal activity of the bowels and is, besides other things, a preventive of constipation and a natural lubricant for the intestinal canal.

(d) As already indicated, it is essential that all milk fed artificially to calves should not only be fed at body temperature, but that it should also be clean and wholesome. Accordingly it is just as necessary to thoroughly cleanse and sterilize as far as possible the milk containers and feeding buckets for calves as the jugs, cups, etc., for human beings. Milk when contaminated by dirt, manure, etc., rapidly undergoes changes in its composition and may easily be converted from an ideal food to an insidious poison.

Success in the artificial feeding of calves is not easily attained. It is the most delicate of dairy operations and requires a definite method, regular feeding periods, measured ration of milk and scrupulous attention to cleanliness of utensils.

Many calves by virtue of their inherited constitution live in spite of the general mismanagement to which they are subjected, but they are not the beautiful specimens of youth they might have been. They are not shapely, their hair instead of being sleek and oily is long and harsh. They are pot-bellied and in general appearance nothing to be proud of, in other words, an inferior article.

Dampness and Cold.

This heading includes such things as improper housing (lack of shelter, good ventilation, proper bedding, and drainage), exposure to chilling rains and winds, and lack of sunshine.

It is difficult to say which of the foregoing is the most important for the health of animals, because each is vitally important, yet I

hazard the primary requisite of drainage. Without it no *proper* housing is possible. It is the key to a dry and warm floor (made of earth, concrete, brick or other materials), to a clean surrounding yard, and pure life-giving air.

Seldom does this very important aspect of farm hygiene receive sufficient consideration. In many cases the animal buildings on a farm are put at any "old" place, often the worst that could be selected. Such an initial blunder is a life-long handicap to the animals as well as the working-efficiency of the establishment.

The natural instincts of our animals lead them to seek for resting places the well-drained portions of their runs, the shelter from cold winds afforded by natural wind-breaks, such as hedges, or the contour of the land or walls, etc., and the balmy sunshine of the mornings and evenings as well as the shade of trees, etc., during the strength of the mid-day sun.

The rule for good management then is clearly to stndy ways and means to gratify their natural desires, otherwise, they will not thrive.

Young animals, like young plants, require special attention to their every need in the first months of their lives in particular. Just as they respond more readily than the adults to stimulating feed, etc., in their growth and general development, so on the other hand they fall away or are depressed or devitalized more seriously by adverse conditions.

In the collective sense dampness and cold may be the prime causes of diarrhoea as well as lung trouble (pneumonia) and general lack of thrift.

These factors reduce the vitality of all animals, but their effect is most apparent in the young.

The lowering of their vitablity is shown in many ways, not the least of which is the effect upon the digestive system.

Colds in the head, sore throat, rheumatism, etc., are often ascribed to sitting in a draught, or a wetting or lying on wet ground or over-heating with rapid cooling off, etc. In reality these things only pave the way or create the conditions of a reduced vitality which gives infecting germs the opportunity to get the upper hand of the defensive forces of the body.

So it is also with our young animals. Their vitality is lowered by the factors mentioned (often through mismanagement) and they fall a prey to infections of various kinds. In such cases the healthy vigour of the digestive system is impaired, the delicate functions of digestion are deranged, and diarrhoea, acute or mild, is very likely to supersede.

Treatment.—It is much better and more profitable to prevent the diarrhoeic troubles of animals than to treat them. Treatment costs money and labour, and all such disorders are a serious setback to growth in the young and the normal function of adults.

The cause should be discovered, if possible, by a thorough investigation of the food and water supply, housing conditions, and every detail of management. It is marvellous what strange things can happen on a farm!

When animals are affected with diarrhoea, owners generally call for medicines immediately, whereas experience shows that medicines are really of secondary importance. Correction of faulty diet, bad living conditions and mismanagement are of greater value in such matters than medicines.

Often cattle which are purging constantly on succulent pasture or

stable fodder are cured merely by feeding hay or more fibrous food. Scouring in calves due to stale milk or improper methods of feeding quickly recover when conditions are put right. Stale "chop-chop" sugar cane will cause colic in cattle and founder (laminitis) with colic in horses and mules. It is a fodder that is often allowed to remain in their feeding boxes or troughs too long after it has been fed to them.

These instances and many others which may be cited are mentioned to show how the stockman may really help himself, if he is observant and painstaking in his dnties.

In the medical treatment of these bowel troubles, the basic principle is to cleanse the digestive tract of irritating substances and counteract by food or drugs the hyper-activity of the bowels, and keep up the dwindling strength of the patient.

(a) As a cleanser of the bowels raw linseed oil for adults and castor oil for the young are indicated. Laxative salts, such as Epsom (magnesium sulphate) or Glauber (sodium sulphate), are very useful in the earliest stages and before bowel scouring has been fully established. When used for purgative reasons in the latter stages they are too weakening. Oils at such stages are preferable.

Notes on Linseed and Castor Oil as Purgatives.

(i) Castor oil is seldom given to adult horses or cattle: it is of uncertain action in adult horses and is very nauseating to them. It may be given to adult cattle, but raw linseed oil is to be preferred.

In foals, calves and other farm small stock (sheep, goats, swine and poultry) it is safe and reliable.

Dosage.—Adult horses and cattle	1 pint.
Foals according to age	2-3 ounces.
Sheep, goats, swine	2-3 ounces.
Lambs, kids, pigs.	½-1 ounce.
Poultry (adults) ..	1 drachm.

Medicinally prepared castor oil is best, because in its refinement a residual poisonous ingredient (ricine) is eliminated. In most subjects it has no marked tendency to gripe.

(ii) Linseed oil is extensively employed as a milk purgative for adult horses and cattle. Care should be taken in drenching horses at all times, but especially so with linseed oil; for horses resent it and frequently refuse, except under severe coercion, to swallow it. If possible, it is much better to give them the oil (a teacup or so) in a mash in two or three successive feeds. As a purgative, aloes as a bolus is a much safer purgative for horses. Most cattle relish linseed oil and are easily drenched with it.

The linseed oil administered to animals should *always* be the *raw oil* and not the *boiled oil*, which by reason of its content of lead (litharge = protoxide of lead) is very poisonous.

Dosage.—Horses: 3-4 ounces in a mash as a laxative, 15-20 ounces as a purgative.

Cattle: 4—5 ounces as a laxative, 1 pint as a purgative.

Not indicated in small stock.

Cattle are naturally so fond of linseed oil that they commonly lick freshly painted surfaces or residues of paint on the inside of the tops of paint kegs, etc., and in so doing are frequently fatally poisoned by the lead, arsenic, etc., base of the paint.

(b) When there is a hyper-activity of the bowels or intermittent spasms of pain there is no better drug to give than laudanum (tincture of opium). This valuable and indispensable drug, however, is not always

available or is difficult to procure because of the regulations dealing with narcotics.

In such cases we may advantageously use spirits of turpentine (oil of turpentine). In concentration it is distinctly irritant, therefore it should always be given in a protective medium such as oil (linseed or olive oil), milk, starch water, rich honey-water or gruels.

As a single dose the following may be given:—

Horses, 1 ounce; cattle, 2 ounces; sheep and goats, 1-2 drachms according to age; swine, ½-2 drachms according to age.

Calves 1-6 months old, 1-3 drachms, over six months old, 3-4 drachms.

If tincture of opium (laudanum) is available, the dosage is: horses and cattle: ½-2 ounces.

Sheep and swine: ½-2 drachms.

Calves with constant purging, 2 drachms, three times daily in a pint bottle of milk. If the purging arises from a milk diet, the daily allowance of milk should be reduced by half and mixed with pap or gruel.

(c) As additional correctives and aids in the restoration of normal bowel functions, a great many gruels and drugs may be mentioned: Gruels or subsidiary feeds:—parched flour pap, arrowroot pap with cinnamon, oatmeal porridge, rice water, blood meal or flour. These may be mixed with the bucket milk at feeding time.

Blood meal or flour obtained from local agents of Swift and Co., etc., is highly recommended as an aid in preventing and checking milk diarrhoea in young animals. It is fed in 1-3 teaspoonfuls quantity according to age, mixed with the milk at each feeding time. It is a food and not a drug, and the quantity fed may be increased to 1-2 tablespoonfuls if necessary.

Drugs of use:—

(i) *Lime Water*—prepared by merely adding two tablespoonfuls of powdered slaked white lime to a few (four or so) quarts of cold water, shaking well and allowing to stand and then pouring off and straining through a muslin the clear fluid.

Add to the milk 1-3 ounces of the clear fluid according to the age of the calf and the amount of milk fed. It corrects acidity and is somewhat astringent (binding) to the loose bowel.

(ii) *Formalin.*—This drug is useful in checking the fermentation of milk in the intestines. A stock solution may be made by adding one-half ounce (tablespoonful) to a pint of water. The dose of this stock solution is one teaspoonful to each pint of milk fed.

(iii) *Magnesium oxide or carbonate.*—Magnesium oxide or carbonate is very usual in counteracting intestinal acidity. Two teaspoonfuls may be added to each quart of milk fed by the bucket.

The three above drugs may be given for several days in succession, in fact, they are valuable preventives of ordinary milk scours.

(iv) *Proprietory Preparations.*—In many cases stockmen are unable to obtain specific drugs promptly fror the treatment of their animals. Accordingly it is a common practice to keep on hand a supply of proprietory remedies.

Many of these have a very worthy reputation and are undoubtedly of great help to stock owners in dealing with their sick animals. In some cases the formula of the preparation is stated on the label, in others it is not. The indications and direction for their use are usually clearly set forth.

When such remedies are prepared and vouched for by reputable and long established firms and by test have proven dependable.

medicinal agents, they compel our recognition and commendation for specific purposes in the field of animal medicine.

SPECIAL OR SPECIFIC INFECTIONS.

From what has been said already, it is evident that diarrhoea is not truly a disease in itself, but rather an indication or symptom of a severely deranged or diseased condition of some portion of the alimetary canal. As indicated, the actual cause or causes may be many and various; consequently intelligent treatment must be based on a determination of the cause in each particular case or outbreak, and upon its removal or prevention, if possible.

In addition to the damage to the digestive organs arising from improper feeding and the devitalising effects of dampness and cold etc. (poor hygiene), there are forms of diarrhoea which are caused directly by specific infectious organisms, which attack the intestinal tract principally, and induce extensive and acute inflammation with subsequent severe (often fatal) diarrhoeic disorders.

These specific diseases of the digestive organs will be dealt with later in articles on Special Infectious Diseases of Farm Animals.

April 30, 1934.

S. LOCKETT,
Govt. Vet. Surgeon.

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EDITORIAL COMMENTS.

Our Sugar Industry.

At the April meeting of our Board of Management, Mr. U. Theo, McKay moved the following resolution:—"That due to the menace of Panama Disease immediate steps be taken by the Board of Management of the Jamaica Agricultural Society to encourage and expand the industry of cane farming among small settlers."

In moving the resolution he read a memorandum which is of such import to our community that we take pleasure in publishing it in other pages of this issue of the Journal. We agree that making the desired object of the resolution the duty of the Jamaica Agricultural Society is quite proper, but nevertheless we have the privilege of knowing Mr. McKay's mind on this subject and know that he intends the Government of this country to seriously overhaul the entire sugar industry in all its ramifications so as to enable all classes of the community to benefit by its operations.

More and more the key industries of countries all over the world have come to be regarded as public utilities. It is not always wise for them to be managed on the lines usually associated with the management of what is popularly known as public utilities, but nevertheless sufficient government control has to be applied so that the interests of the smaller elements of the population are protected, thereby enabling them to participate in the operations and the profits of these key industries. Unquestionably the sugar industry is one of the most important industries of the Colony. It has for decades been the shuttlecock of politics. It has also met with the fiercest competition from foreign countries producing both sugar cane and beet sugars. It experienced in no small degree the reactionary price depressions subsequent to the post war period and latterly the worst conditions resulting from overproduction and the world wide depression period. Happily within the last year or two a more hopeful atmosphere has been made possible for this industry and this has entirely been caused by governmental action both here and in the Mother Country. We are provided with some modicum of assurance by protective tariffs in the United Kingdom markets and also in the markets of Canada, and locally we have protective duties and controlled prices; all of which are tantamount to subsidies from the local and British consuming populations.

When communities tax themselves to save an industry the object must obviously be the maintenance of employment, and in a country like this such employment should certainly not be confined to wage earners only, as it is highly desirable that the small proprietor farmer should have an opportunity of earning his own wage through such an industry wherever his conditions lend themselves to efficient production.

That many minds in the country are thinking along these lines is without question a fact. We would refer our readers specially to a letter written to this Journal by Mr. J. C. Elliott which appears in the December, 1933 issue on the same subject.

The question may be asked "What are the factors that have prevented in the past the more general participation in the production of cane by the small farmer?" This question can be readily answered although the answer is undoubtedly a many-sided one. Cane is cheap bulky freight and its transportation to the factory forms a large percentage of its total cost of production. Factories are usually centralised for the convenience of the landowners who erect them, and

this is only natural, and so small farmers are usually further away from these factories than plantation cultivations. The price basis generally paid for canes delivered at the factory is what is commonly called the five per cent, basis which means that five per cent. of the value of sugar is the price paid for a ton of delivered cane; With sugar around nine pounds per ton, nine shillings per ton for cane to the cane farmer more than three or four miles away from the factory is hardly an inviting proposition. The question therefore turns upon whether five per cent, is an equitable rate or not. The answer to this turns entirely on the efficiency of the factory. This is where we think a government reorganization of the industry would fill a very big need. If these factories are not efficient they should be made so, as that in the last resort, is the only way that they can justify the British and local preferences and subsidies and be worthy of the assistance given to enable them to compete with foreign efficient production. Based on efficient factory operations a controlled price for cane farmers canes should be instituted and every facility provided for the factory owners including government credit facilities, if necessary, to enable factories to be brought to a high standard of efficiency. This along with the fact that we are using much more highly productive varieties of canes for our crops and in addition the introduction of research and experiments to enable us to adopt the most efficient cultural practices in production. should enable the industry to be profitable to the factory owners and cane-farmers; and so long as the small farmers are assured of a small percentage of the factory capacities for the manufacture of their production they also will benefit by the expansion, control and heightened efficiency of the industry.

Organized Marketing.—

A recent Farm Product Marketing Act has just been made into law in the Dominion of Canada. The rough details are:—

Creation of a Dominion marketing board, with powers to form local boards and to co-operate with marketing boards created by the provinces.

Authority to provide by Order-in-Council for the regulated marketing of any natural product.

Control by license of the export of any regulated product.

Control of the inter-provincial marketing of regulated products. Regulations of the importation of any commodity likely to compete with a regulated product in Canada.

Powers to enable organised producers to control the marketing of their products.

Products to be covered are those of the sea, the forest and the farm, products of the mines are not included.

Compensations for persons who may suffer loss through orders of the board to export or hold their product off the market.

Compensation to exporters for loss through fluctuations in exchange rates.

Control of the grades of regulated products which may be exported.

Wide powers in investigating price spreads in the handling of regulated products with authority to fix fair spreads.

Penalties up to a $10,000 fine are provided for any infringement of the Act.

The Act will be administered by a minister of the cabinet but the bill does not designate which minister it shall be.

Something on the same lines has been done in England as affecting special agricultural commodities, and now we hear rumours of legislation

for greater control of the marketing of bananas in Jamaica. We are entirely unaware as to the accuracy of the rumours or the news-paper articles we have heard and seen, but everything does point to the necessity of greater organization of the marketing of agricultural products in every country of the world.

We feel that farmers in Jamaica to be in the forefront, must commence to think on this subject.

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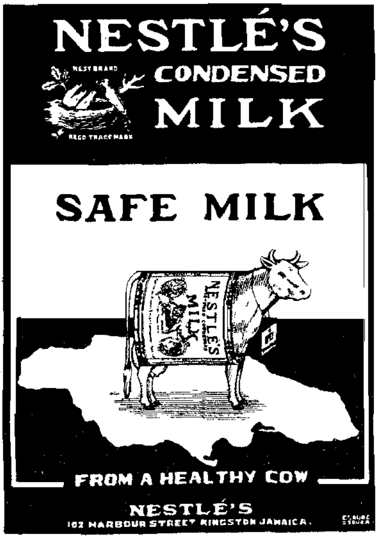

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THE SUGAR INDUSTRY.

Memo. read to the Board of Management at their April meeting by Mr. U. Theo McKay, following his Resolution re the expansion of cane farming among small settlers.

It is well that we recognise the very grave menace of Panama Disease to our chief industry, the fruit trade. We are fighting a rear guard action, but signs are not wanting that ere long there will be a complete rout and we will be finally overwhelmed unless the "Sutherland" banana comes quickly to the front; and here I want to pay tribute to the industry, energy, work and worth of J. B. Sutherland for the very splendid efforts he has put forth and for the success he has so far achieved. In some districts in and around Frankfield over 60% of the Banana Industry has been wiped out by the disease; and around Brandon Hill and Colonel's Ridge there is the same tale to tell. The question is what crop can be substituted for the banana? The activity now displayed by the authority in the Citrus Industry is praiseworthy, but one must realise that at least five years are required before returns are got, during which time the duties of a citizen must be performed—duties including those to his country and himself. It seems to me that the nearest substitute to the banana is the sugar-cane, although I do not mean that it should be a substitute to citrus, but a standby by which some ready money can be got to carry on. And right here I must say that the Island is indebted to the Jamaica Imperial Association and Mr. H. G. DeLisser, C.M.G., the Secretary, for the splendid work they are doing in the interest of the Sugar Industry for Jamaica and the B. W. Indies. I do not mimimise the importance of the small settler with his iron mill making and selling his new sugar, but what I am thinking of and what I desire to see is the small settler as a cane farmer contributing to the sugar export. I want to see him growing his canes and selling to the factory owner at a remunerative price. One thing must be borne in mind and that is that the days of large profits are gone and that the economics of agriculture must be practised in order to come out on the right side. The haphazard way of cultivating must be scrapped and we must break fresh grounds if we would suceed. I do feel that the small settler or cane farmer is deserving of consideration where the Sugar Industry is concerned, and that he has qualified himself to deserve if not to demand such consideration. For in 1930 general revenue, to which he is a contributor, gave a subsidy to the Sugar Industry of £100,000. In the next year the subvention of £60,000 for the War Debt was borrowed by the general taxpayer and given as a subsidy to the Sugar Industry. Since then the consumer has given a subsidy of £4 13s. 4d. per ton. Surely all this shows that the settler has a right to consideration; and that consideration is that his canes should be purchased at a price which will leave him a profit; that the sugar planter should in lean times be satisfied with a minimum of the profits where the cane-farmer is concerned in order to keep him in the industry.

Our duty as a Society is to educate the farmer so that he may be a real factor and be able to help the industry. He should be encouraged to plant and cultivate a cane that will give an average of say 60 tons to the acre, and instead of getting two tons of sugar to the acre not less than 6 tons should be obtained. It is here that the Department of Science and Agriculture should come in by giving us a cane which is a

large cropper and rich in sucrose matter. At present most of the fields of the small settlers in canes are infected with mosaic disease which reduces the yield by about 30%. About 3 years ago I gave a small settler 10 roots of Java Seedling canes. He reported to me that he has a splendid field of the same canes now, having killed out the ones susceptible to mosaic disease, and he is just about to make some sugar from his seedling canes. That goes of course to the credit of Hope Farm. If the canefarmer is encouraged to grow a cane which will give him an increased tonnage per acre he will save cost of cultivation and rent, and if it is a cane of high sucrose content he will be assisting the estate owner.

The estate owner is to install such machinery as will enable him to extract the greatest possible amount of the sugar content of the cane. Of course this means a comparatively large investment, which can only be ventured if the prices of the industry become stabilized, and it is here we see the great necessity that the question of preference should not be with England or Canada a party question, but rather a question outside of party politics, and it is rather gratifying to see the work being done is this direction by the Jamaica Imperial Association. Mr. Stockdale said that outside of Jamaica some factories use 8½ tons of canes to the ton of sugar while in Jamaica the average is 11 tons. This must be rectified. The estate owner must bear in mind the subsidy by the consumer of £4 13s. 4d. per ton for one-quarter of the sugar produced here. Then he gets the preference certificates which are worth about £1 per ton and he gets the by-product of rum. All these should help the estate owner to give a price to the farmer that will keep him in the industry. In Trinidad 50% of the canes produced is grown by farmers, and they are paid on a basis of 5% per ton of sugar FOB, and there is an agreed price among some of the farmers and estate owners of 12/- per ton. The farmers are financed by the estates or by their Ag. Credit Societies. In St. Lucia the cane farmer bulks very largely. Barbadoes has about 15,000 acres of mixed cultivation, the most of which is sugar cane. In Barbadoes 9 tons of cane go to one ton of sugar. In Jamaica we take 11 tons. I think I have shown where the co-operation of the Department of Science and Agriculture, the estate owner, the Imperial Government, the Dominion Government and the Jamaica Agricultural Society is necessary to the success of the cane-farmer in Jamaica. The special work of the Society is that it should second some of its officers to encourage the settlers in the growing of canes. Different districts should be taken up and worked to a success. We do not want any nibbling. In Clarendon, the districts of Brandon Hill, Colonel's Ridge and Lampard are in a very bad way and should be the first tackled. In the district of Colonel's Ridge a young man who had ventured abroad returned and invested his money. He was able to cut between 300 and 350 stems of bananas every month. To-day, through the ravages of Panama Disease he cannot cut 30 stems a month, and so this man has been reduced from being a contributor to the revenues of the country to a state where he will soon be a charge on the revenues of the country.

I saw in the papers a few days ago where the factory at Bernard Lodge is making a ton of sugar out of 8 tons of cane instead of ten, last year's record. This is very cheering, showing an increased proficiency of 25% in one direction alone. And I am asking you to look at this resolution from an impartial standpoint. Do not think of the person who has introduced it, but rather think of it from an impersonal standpoint. And if you think that it will do some good, help a large section

of our community, and in that way help to stabilize the revenue of the Government, then I am asking you to support it. I am afraid that often many of us think of the kudos to be gained, think too much of ourselves, and too little of Jamaica, in bringing forward any matter, and that often leads to the rejection of the resolutions. But I feel that any resolution adopted by a Body or organization does not redound to the glory of any individual but rather to the honour of the organization, and it is in that spirit that I heartily commend this resolution of mine to your goodwill, *Jamaica's welfare first.*

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REPORT ON PIMENTO DISEASE IN THE PARISH OF MANCHESTER.

From Government Microbiologist to Director of Agriculture.

May 10th, 1934.

The Honourable
The Director of Agriculture,
Hope, Kingston.

Sir,

I have the honour to report that I have made investigation into the outbreak of disease among pimento trees in the parish of Manchester.

2. The disease has been brought to notice within the last two weeks and it appears that it only became noticeable about the middle of April. Samples have come in from many districts in the parish of Manchester and from St. Elizabeth, and while a detailed survey of every property has not been possible, from observations made and reports received it appears that the disease is distributed right through the area bounded by Malvern on the west, almost down to Porus on the east and from the coast as far north as Christiana. Since this report was written the disease has been reported in mild form in some parts of St. Ann and as far west as Darliston on the south side of the Island.

3. Up to the present the most intense infections appear to be in Southern Manchester, although considerable damage is being caused to berries right through this parish and parts of St. Elizabeth.

4. Pimento is a crop which up to the present has been free from serious disease of any kind with the exception of occasional deaths of trees from fungus attack at the root. Considerable deaths of trees on a property in Hanover took place some 20 years ago but the records indicate that this was of a totally different nature from the disease which now has appeared.

Symptoms of Disease.

5. The disease is attacking the young parts of the tree only. In the case of the young leaves it appears as a number of circular discoloured spots which usually appear reddish on the upper surface with a yellow colour below, due to the spores of the causative fungus. In some cases when the leaf is attacked while very young the lesions are not always round but of irregular shape. By degrees the yellow colour beneath changes to a greyish colour and the lesions ultimately become a greyish-brown.

6. The young *shoots*, as they emerge, are also attacked and numerous lesions appear which frequently result in withering of the tip of the shoot. When the *flowers* are attacked the lesions appear on the flower stalks and result in shedding of the blossom. This form of attack has caused a very serious loss of blossoms with consequent reduction in crop.

7. In many cases also, where trees blossomed before the disease apparently made its appearance, the young berries have been attacked later and in most instances where this has taken place a large scar has been made on the half-grown berry. It appears highly probable that such diseased berries will either fall prematurely or be unsuitable for curing and marketing.

8. The type of attack of the disease on individual trees varies considerably. In some instances, in the same field, one tree will show

practically no dying back of the twigs, very little leaf spot, but a heavy infection of the berries, whereas, in other cases, probably in trees which have blossomed later, the blossoms, leaves, and young twigs are all heavily attacked and give the tree a poor and diseased appearance.

Distribution.

9. It has been mentioned already that the area in which the disease has appeared consists of practically the whole parish of Manchester and a good proportion of the parish of St. Elizabeth. While the disease is distributed right through this area, its intensity varies from place to place and even on individual properties varies between one pasture and another. The most severe infections up to date are in the southern part of the parish, especially in the more wind-swept areas. It sho ıld be mentioned, however, at this point, that while the disease is responsible for a large proportion of the loss of crop through diseased blossoms and berries there has been at the same time a considerable loss of blossom due to the heavy rain. This has caused rotting of the young flowers similar to the trouble which is sometimes experienced with mangoes.

Cause of the Disease.

10. The disease is caused by a fungus of the group *Uredineae* or the Rusts. I have made careful examination of the fungns in the Laboratory and find that it is a Hemileia which has never been previously reported, in fact, no similar fnngus of the same family has been recorded on pimento oı its near relatives.

11. I have tentatively named the fungus but shall await confirmation of my diagnosis from specialists in this group in London or United States, but although the final name has not been given for the parasite there is no doubt that it belongs to this group and appears to be of the genus *Hemileia.*

12. Although this is an entirely new disease to science the fact that it is Hemileia is sufficient evidence to indicate the course that the disease is likely to take. It is a fungus closely allied to, though not the same as, that which caused the Coffee Leaf Disease in Ceylon. The important feature about that disease is that it is only capable of of doing its maximum damage under conditions of heavy rainfall. The fact that the whole parish of Manchester had had abnormal climatic conditions with heavy rains out of season for the last 18 months is evidence that the conditions have been such as to foster development of such a disease. It is highly probable that the disease has been in existence in Jamaica, but unnoticed for a very long time. The normal climatic conditions, especially in Manchester and St. Elizabeth, would be unsuitable for the development of such a disease, and for the same reason it is fairly safe to predict that with the return of the usual drier conditions in these areas the disease will steadily revert to a status of minor importance. This, of course, is to some extent a matter of speculation because the disease is entirely new to science but fungi of this group of tropical Rusts must have conditions of heavy rainfall to become widespread and of severe intensity. To cite an example, the Hemileia Rust of Coffee which is the Ceylon Coffee Disease, when introduced into the Island of Reunion, devastated all the Coffee on the wet side of the Island, while on the dry side practically no damage was done at all.

13. Planters in Manchester appear to be apprehensive lest the disease should cause death of the trees. The nature of the Rust fungi is such that they must have young and actively growing material to live upon. They are generally incapable of existing in inactive tissues

of a plant such as the wood of the trunk of a tree. There is, therefore, little possibility of this disease attacking any parts of the tree other than the young shoots and the young leaves, and therefore I do not anticipate that trees will die through the disease spreading backwards from the tips of the twigs through the branches and the trunk and ultimately to the root. Should, however, the disease persist in severe form for a number of years, the trees will ultimately become seriously weakened through the perpetual loss of leaves and young twigs which are the organs that feed the remainder of the tree. If such a condition persisted for a series of years, trees might die through constitutional weakness but the pimento is of such a hardy nature that I think such a state of affairs is very unlikely to take place.

14. In further support of the view set forth above, it is interesting to note that Mr. Cradwick of Mandeville states he saw this disease on his young pimento trees last year, and Dr. S. Lockett says he remembers a similar condition about 1900.

15. It will be necessary to watch the development of the disease for some time before a full account can be given of the damage which it will produce. I am inclined to think, however, that most of the trees in this sarea which have not already lost their flowers, either from the damp weather or the attacks of this disease will have at least 50% and probably more of the remaining berries attacked by the Rust. Such berries may drop prematurely but should they be reaped it remains to be seen whether they will cure satisfactorily or have a blemished appearance. It seems safe to predict that the production of good pimento in the area above-mentioned will be extremely small this year, although at the beginning of the flowering season there was every reason to anticipate an abnormally heavy yield.

16. The question of control naturally arises but I regret to say that Rusts, except those which have alternative hosts, are most difficult fungi to deal with in the field. Hemileia belongs to that group of rusts which do not have alternative hosts.

17. The disease is so widespread throughout the parish that any attempt to control the disease would be futile. In any case pimento being a semi-wild crop which grows in pastures and woodlands renders any measure of control which might be devised, such as apraying, a physical impossibility.

18. I am, however, quite optimistic as to the future of the disease because the nature of the fungus is such that a return of normal dry seasons in this area should restrict the activity of the fungus very considerably and it is reasonable to assume under such conditions that the disease will steadily disappear.

19. Naturally, a certain "Carry Over" from the mass infection of this season is to be anticipated next year but the fungus should rapidly return to its normal proportions in the course of two normal seasons. In making this statement it is assumed that the disease has been present in Jamaica in a very mild aud unobserved form for a very long time. My reasons for making this assumption are that the disease broke out simultaneously throughout wide areas whose normal climatic conditions are unfavourable to this class of fungus. The Rusts, as a whole, are extremely specialized parasites, not only do they affect one group of plants but frequently restrict their activities to one species alone. Pimento being a plant native to Jamaica and there being no close relatives of pimento here which are subject to a similar disease, any idea that the disease has been imported into the country from elsewhere seems to be negatived. The matter, however,

will receive further consideration when I reach England and have the opportunity of discussing the outbreak with specialists in this particular group of fungi.

20. In conclusion it appears opportune to point out that, on the whole, Jamaica is extremely fortunate in having very few fungus diseases of major consequence. This is largely due to the fact that it has a relatively small though well distributed rainfall for a tropical country. Even Panama Disease which is the worst fungus trouble in the Island has taken a long time to reach serious proportions as compared with other tropical countries with high rainfalls. The present season, during which we have had abnormal rain fall has shown the potential danger from fungus disease which this Island would have to face in the event of its rain fall increasing for a period of years. I might cite the extraordinary and rapid development of Potato Blight which has taken place in Northern Manchester during the past month as one example; another example is the unusual development of Melanose on the skins of Grapefruit during the past season, to say nothing of the tremendous loss from Stem End Rot of Citrus, which has been sustained where adequate control methods have not been adopted. Many other similar outbreaks of disease have come to notice and which can be directly attributed to the abnormal rainfall.

I have the honour to be, etc.
Sir,
(Sgd.) F. E. V. Smith,
Government Microbiologist.

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EDITOR'S LETTER BOX.

We have pleasure in publishing a most interesting letter from Dr. W. E. McCulloch on the subject of the production of crops with a view to ensuring the population food complete in all its nutrimental requirements for good health.

This aspect of plant production has had little or no attention in Jamaica, and we are singularly furtunate in having Dr. McCulloch, now domiciled in the country, whose qualifications in regard to the subject of both human and animal nutrition are very excellent indeed, and internationally known.

Dr. McCulloch has the degrees of M.D., M.B., Ch.B., and is also a Fellow of the Zoological Society. He has just recently retired from the position of Dietitic Research Officer of the West African Medical Service, where he was their Pathologist and Bacteriologist. He was also Bio-Chemist and Food Analyst of the Animal Health Committee of Nigeria, and at one time was sent to the Gold Coast in an advisory capacity on the question of animal nutrition.

Dr. McCulloch has made many contributions to scientific journals on the subjects mentioned and we certainly value his opinion on these matters, especially in view of the study of tropical material.

Ed.

44 Duke Street, Kingston.
16th March, 1934.

The Editor,
Sir,

Perusal of the recent numbers of your admirable Journal has proprompted me to write to you.

In the December, 1933 issue there is a letter from Lord Olivier on the use of the mango tree for re-afforestation.

There are two important points about the question of the advisaability or otherwise of propagating a fruit-bearing tree, and that is the question of the nutritive value of its fruit and its effect on other crops around it.

The mango has been shewn to be exceedingly rich in Vitamin A, and it is now a part of the policy of the Indian Agricultural Departments to propagate this valuable fruit tree in areas where the population suffer from lack of this vitamin in their ordinary daily food.

Lord Olivier quotes an authority who calls the mango a fertilizing tree. I believe that modern expert opinion is unanimous that the mango is a most greedy feeder, and for that reason it is now the practice to plant mango trees as wind breaks at least 30 feet from the crop to be protected, and even, in some places, to dig a protective ditch so that the omnivorous roots do not encroach on the soil intended for the main crop.

After many years of absence from Jamaica, it is a constant wonder to me to find that the hurricane harassed banana is not protected by wind breaks. The mango would probably be an admirable shield as well as a lucrative crop if it were planted between the fields of bananas.

My observations in Jamaica, over a very short period it is true, confirm my first impression that there is a certain demonstrable degree of vitamin shortage in the food of the general population of the island. This shortage is demonstrated more particularly in artificially fed babies, and in the chronic cases of ill-health which receive instant benefit from dosage with Vitamin B complex concentrates or

yeast. Everyone in Jamaica is familiar with the bow legs of rickets which is really prevalent to a disgraceful extent in a country which is world famous for its sunshine.

That there should be any degree of vitamin starvation in a great fruit growing country such as ours is only possible because of the ignorance of the population as to what to eat and to do to obtain these essentials to proper growth and maintenance of health. It seems to me that your Society could do an immense amount of good by well instructed propaganda, both as to what to grow and how to do it, so as to obtain a sufficient supply of these dietary essentials.

It may be of interest to you to append the following small table of the proved vitamin content of some of the more common fruits in Jamaica.

Fruit	A.	B1.	B2.	C.	D.	E.
Avocado Pear	xx	xx		-to x		
Banana	xx	x	x	xxx	low	xx
Plantain	xx	xx		xx		
Breadfruit	xx	x				
Grapefruit	x	x		xxx		
Lemon	-to x	xx		xxx		
Lime	-to x	x		xx		
Orange	x			xxx		x
Guava				xx		
Mango	xxx			xxx		
Paw Paw	xx	x		xxx		
Pineapple	xx	xx		xx		
Tomato	xx	x		xxx		

From this table it is at once evident that there should be no shortage of Vitamin A and that it is almost impossible to get scurvy in the Island because of the richness of its fruits in Vitamin C. There is a notable lack of the anti-pellagra and anti-beri-beri factors in the fruits under discussion.

It is now generally accepted that the Agricultural Policy of a country must be closely linked to the wider aspect of Public Health Administration which is concerned with the prevention of disease rather than its isolation and cure, and this insistence on the importance of a sane healthful agriculture has made the late Dr. Kinloch, the Chief Medical Officer of Scotland, one of the very distinguished pioneers in Public Health Administration when it was thought that the days of pioneering were over

It was my privilege to inaugurate the first Dietetics Committee in the British Empire, concerned with the Public Health of the 22 millions of people in Nigeria and on that committee we had and still have members who are expert on Agricultural, Veterinary, Geological, Medical and Dietetics problems. It is the aim of that committee to carry out experimentation on the introduction of new crops of first rate dietetic and commercial value, and, in a word, to apply the pooled knowledge of all scientific departments, to the welfare of the people and their agriculture.

In my ignorance, perhaps, it seems to me that there is room for such a committee in Jamaica. For instance, the question of a vegetable milk for the children, instead of the ridiculous condensed milk is an urgent one which is capable of solution, and which is having a great effect in Nigeria on the health of children which are hospitalized. Again, it is still the custom for guinea-grass to be grazed when it has begun to seed. The Cambridge School of Nutrition has proved over and over again, practical farmers have accepted the proof and acted on it, that a 3 weeks rotational grazing means an increase of 2 times the the normal stock population of that particular farm. Such facts would come out in a committee of experts and would be applied with advantage to this island.

The work of our Animal Health Committee in Nigeria is another story, but it too has achieved results which have been quoted in the veterinary journals of the world.

I am, etc.,
W. E. McCulloch,

Late Dietetics Research Officer,
West African Medical Staff.

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"The Rectory," Long Bay P.O.,
8th May, 1934.

Glaister Baxter, Esq.,
Secy. Jam. Agl. Society,

Dear Sir,

I notice that "Nutmeg" thrives very much in these parts. Just before Our Bank at Black Rock there is a tree that yields over 200 eggs. It has occurred to me that your Society might give the matter some consideration, as this part of Portland really needs some minor industry in order to help the people to live decently.

I am, etc.
(Sgd.) S. M. BINGER.

REPLY.

8th May, 1934.

"I am very grateful indeed for your letter of the 8th instant; by a coincidence the same thought had been passing through my mind in considering crops for Portland, and only yesterday I had the opportunity of interviewing an Agricultural Officer from the Colony of Grenada who happened to have been in Jamaica, and discussed this subject very thoroughly with him. In Grenada the main crops are Cocoa and Nutmegs. They are now trying to establish a Banana Industry down there.

On questioning him very carefully, I found that the Nutmeg is the only crop that has remained profitable in these years of depression. I also from his talk had my opinion confirmed that the Nutmeg would thrive under wet humid conditions such as the parish of Portland affords. It, of course, has a fairly wide and well-established market in England.

I will bring this matter up before the Planning Committee when they are considering our projects for Portland, which will be in a week or two.

May I have your kind permission to publish this correspondence in the Journal?."

* * * * *

Mr. Editor,

The members of the Marlie Hill Senior and Junior Branch J.A.S. wish to use this medium to thank Mr. Tucker; Assistant Director of Education, Hon. T. J. Cawley, Mr. Carrington (then Supervisor of Instructors), the Secretary of the J.A.S., Mr. Howe (Farm School), Instructors Shirley, Coke and Wray for their visits and addresses to our Juvenile Branch on their Vegetable Growing Competition Prize Giving Day; also Mrs. Tucker for distributing the prizes, Mr. Martin for his keen interest in the Juveniles, the Board of Management for their donation, and all those who contributed towards the prizes.

Their visits and help have proved a wonderful incentive to Juvenile activities in this district.

We must also thank you, Mr. Secretary, for your samples of artificial manure sent us. We experimented with them in our School Garden, carrying out the experiment on cabbages in the following way:—To the better of two beds of greengage cabbage we added none. To one section of the worse, nitrate of soda; and to the other section the 9.9.9 mixture. To one end-section of a bed of drum-heads, no fertilizer was added; to the middle section, nitrate of soda, to the other 9.9.9. The same weeding and watering were done throughout.

In three weeks there was such vast differences between the plants, that the children who have vegetable pots are clamouring for more of the 9.9.9 mixture. The plants to which nitrate of soda was applied show fair improvement over the plants not treated at all. These failed as hopelessly as similar crops on the same plots failed both seasons last year.

Once more thanking you.

Yours truly,
J. L. THOMPSON,
Marlie Hill.

10.5.1934.

The Editor,
Dear Sir,

Please favour me by inserting in your valuable Journal the following "Notes on Beekeeping."

As one with over ten years experience of this industry, I am much pleased to testify to the quality of queen bees bought from the Jamaica Agricultural Society and I am thankful to the Bee Instructor for his valuable hints from time to time. The queen bees bought in 1932 are still alive and I have reared several new queens from them to requeen several colonies. In spite of the devastating hurricane in November of 1932, I was able to obtain a splendid crop from these queens. I purchased other two queens in 1933, and these two queens have helped greatly to requeen the whole apiary, which is a large one. These queens were the only ones that could withstand the flood rains of last year, and they are still "going strong."

As a result of their endurance and breeding quality my crop for the present season has been considerably increased.

I will not depart from purchasing the "Italian bees," which, in my opinion, far surpass all other breeds. I hereby beg to extend my sincere appreciation to the Agricultural Society for introducing these "Italian bees," and to thank Mr. Coote. the Instructor, for his good advice from time to time.

I am, etc.,
Linstead P.O. Sgd. L. H. GIDDEN.

BRITISH HONDURAS LAND SCHEME.

The Editor:
Sir,

With reference to your comments on this scheme in your journal of February, I agree with your major proposition, that while thousands of acres in Jamaica produce nothing but bush and still more thousands very little, there can be no true surplus population. I admit there is want of employment, due in part to the unequal distribution of the people. Too many in the towns and even those in the country are wrongly placed.

Toward a solution of this pressing problem, I offer two suggestions not as a panacea, but to evoke expressions of opinion.

First:—I am told that in the U.S.A. and Canada, oranges are consumed chiefly in the form of juice. If this statement is correct, it would appear wise, for us to stress, the outstanding qualities of our oranges, richness and abundance of their juices. Instead of trying to compete with qualities that sell competitive fruit, colour and absence of seeds, side step, by drawing attention to our virtues, quality of juice.

Secondly:—Bananas—The bane of this business is the method of marketing. Instead of the antiquated and ridiculous system, now prevailing of fingers and hands, let us boldly abandon nursery stuff and buy and sell by weight, please do not say the buyers will not do it. The present system is all in favour of the buyer and of course they will fight hard to retain it, but unless the scientific staff can turn out on the market an immune banana, equal to the Gros Michel, the country will be driven in self defence to sell short fingered fruit, and this can only be done by weight. There are thousands of acres in Jamaica that can produce this quality fruit equal to the standard *fruit, except length of the finger, a purely arbitrary* definition. Due to method of marketing Panama Disease will either make us change or go bust.

I am, etc.,
JAMES C. ELLIOTT,
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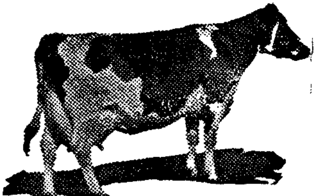

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COCOANUTS.

A leaf disease of coconuts hitherto unknown in Jamaica is causing planters much concern.

Its present distribution covers the north side of the island from eastern St. Mary, as far as Hanover and includes the central districts of St. Mary, St. Catherine and St. Thomas-Ye-Vale. Only this morning specimens have been brought us from St. Thomas-in-the-East and so it may well be considered island-wide.

We are under the impression that the matter is being intensively studied by the Department of Science and Agriculture.

We have an interesting letter from an esteemed member who as far back as last year made some experimental applications of Sodium Chloride (common salt) on his groves which are situated somewhat inland and he now reports very favourably on their condition despite the fact that the disease had appeared. Their resistance and recovery seemed favourably affected.

In Porto Rico an experiment with fertilizer on cocoanuts, with one plot treated with salt only was made and although a hurricane destroyed the entire experiment after eight and a half years in bearing which prevented really definite conclusions to be arrived at, nevertheless there were distinct indications of beneficial effects resulting from the application of salt. Apart from increased production if it can be demonstrated that salt so improves the health and vitality of the tree that it resists or throws off the disease and so maintains its fruiting capacity, it would be found a relatively cheap material.

We would point out that salt specially imported for fertilizer purposes may obtain entry into the island duty free if certified by the Department of Agriculture or this Society that it is bona fide to be used as fertilizer.

We give the extract of letter referred to as it reflects the opinion and experience of a practical farmer.

"I treated a section of my property last year with salt, and gave each tree in that section, a treatment with Bordeaux Mixture. The treatment was inexpensive as I waited until I had nuts to gather and "killed the two birds with one stone." The trees were badly affected by this new cocoanut disease but have made such wonderful improvement in comparison to the untreated ones that it may be worth your while to inspect the place. Especially as the Department of Agiculture seem to think the curing of this disease a tremendous task which would be too costly to be bothered with. You will pardon me if I make a wrong assertion, but that is the impression I got from reading in the Gleaner a report of a meeting in connection with the disease of bananas, cocoanuts and pimento."

NURSERY PLANTS.

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White Grapes plants for April deliveries 1/- each.
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FRED. C. JACKSON, 1 South Musgrave Avenue, Kingston.

CITRUS.

Handling Injuries.

We show below the results of a very interesting test carried out by a large fruit packing organization in Kingston with regard to the various causes of damage to citrus fruit prior to packing.

One hundred oranges were taken at random on delivery and carefully examined for injuries.

The results showed that 37 were undamaged and 63 damaged.

The particulars of the causes of damage to these 63 were:—

Ordinary mechanical damage ..	25
Stem Damage	27
Finger Nail Damage	1
Thorn Damage	10

NOTICE.

Department of Science and Agriculture.

Development of the Citrus Industry.

1. Notice is hereby given that budded plants of oranges and grapefruit will shortly be available for distribution from the Government nurseries on the terms and conditions set out hereunder.

2. Early supplies will be limited in number and confined to grapefruit of the Marsh variety. Orange plants will be supplied when plants are ready in sufficient numbers.

3. Applications for the supply of plants are invited from those persons who desire to establish orchards, stating their name, locality and description of the land in which the trees are to be planted, the area it is desired to plant, and enclosing a remittance of 2/6d. The applications should be addressed to The Director of Agriculture, Hope, Kingston P.O. and clearly marked on the top left hand corner of the envelope "Citrus." The deposit of 2/6d. will be credited against the cost of the plants supplied, or refunded if no plants are issued.

4. Before issuing plants the Director of Agriculture may require to be satisfied that the land specified in the application is suitable for the growing of citrus, and that it is properly prepared for planting. For these purposes it will be assumed that the applicant agrees to have his land examined by a person appointed by the Director of Agriculture.

5. Plants will not be issued for planting if the land is unsuitable, nor until approved land has been prepared, nor until they have been paid for.

6. The price of plants will be 3d. each for the first 25, and 1/- each for any number in excess of 25.

7. No guarantee of the supply of the whole or any portion of orders can be given. Issues may be made of the whole or a portion of any applicant's requirements at the discretion of the Director of Agriculture in accordance with the supplies available.

8. Plants are being made available at a low price on the understanding that persons taking them agree to plant them in accordance with instructions, and to permit the areas planted to be inspected from time to time.

9. The Director of Agriculture in his discretion may cause citrus plants to be issued for planting in lieu of any compensation for destruction of bananas on account of Panama Disease for which banana planters may be eligible, subject to paragraphs 5 and 8 above.

(Sgd.) A. C. Barnes,
Director of Agriculture.

IRISH POTATOES.

It would appear that resulting from the late Blight in the chief potato-growing areas, there will not be the large surplus of potatoes usually offering in July which are usually bought cheaply and held by the trade. This means that prices for late potatoes should be good.

We still have small stocks of seed potatoes available should any planter feel like risking later planting or unusually early ones. Yields might be poor but prices should offset this.

LATE BLIGHT (*Phytophthora Infestans*) OF POTATOES.

The extraordinarily humid condition existing throughout Potato growing areas this year has resulted in very serious losses to potato growers from late blight. This is doubly regrettable due to the fact that it is a preventable disease if the important operation of spraying was made routine. Certain inexperienced growers were inclined to blame the seed as a source of infection, but we are glad to say that the experienced ones realized immediately that the position was entirely caused by the weather. The Government Microbiologist accompanied by the Secretary of the Society and Mr. P. St. L. Bacquie, Supervisor of Instructors inspected the Upper Manchester area early in May. It was found that the early crops had already been affected to such an extent that saving them was impracticable. The Secretary immediately instructed a spraying campaign to be undertaken by the Officers of the Society, the Supervisor and two Instructors being detailed to carry through this work at once, and additional spraying implements and material were promptly obtained and made available on the spot. We look forward to this action saving a large percentage of the latter plantings. But even then it is regrettable to record that a few planters were found who stuck to their attitude of taking a chance in the hope that the weather would turn dry. We fear that these unwise hopes will not materialise early enough to save crops from infection as the district is heavily and widely infected. The Government Microbiologist made a report to his Department and we take the liberty of quoting his last paragraph which admirably expresses the position on spraying:

> "Apart from prevention of Disease there is normally a distinct prolongation of the life of the leaves as a result of spraying, so much so that in temperate zones it is reckoned that spraying, even if no Disease appears, will result on an average in an increased yield of at least one ton per acre. It is obvious, therefore, that if spraying were instituted as a routine on Irish Potato planting in this Country a reasonable increased yield might be expected even in a year when Disease is not prevalent."

It will be seen that spraying pays for itself late blight or no late blight, and we cannot understand anyone not adopting a relatively cheap measure which would increase yields and ensure disease control after having invested heavily in seed and cultivation costs to establish his Potato Cultivation.

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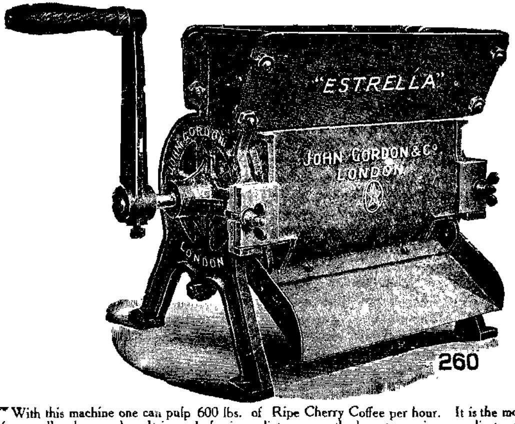

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THE WEATHER.

From the extract of the Jamaica Weather Report published below it will be seen that the weather continued abnormally good up to the month of February of this year. This creates for the island a very much improved crop position, in comparison to the frightfully dry period that immediately succeeded the storms of November, 1932. We should all be very thankful for this.

THE ISLAND—FEBRUARY.

"The mean rainfall for the Island (9.03 ins.) was about three times the 60-year average, and is the highest recorded rainfall for February during the past 63 years—the previous highest being 7.22 ins. in 1921.

The greatest precipitation appears to have occurred during the first three weeks, and particularly on the 6th, 14th, and 17th.

The mean number of rainy days was 14, just double the average for the month. The highest number was 26 at Moore Town, in the North-Eastern Division.

The greatest total fall for the month was 33.63 ins. at Moore Town, and the heaviest fall in 24 hours was 7.75 ins. at Orange Vale in the North-Eastern Division on the 14th.

The mean rainfall in each parish is given below:—

	Inches.		Inches.
Kingston	1.40	St. James ..	4.92
St. Andrew ..	7.85	Hanover ..	4.75
St. Thomas ..	7.65	Westmoreland ..	7.61
Portland	20.29	St. Elizabeth ..	7.54
St. Mary	15.94	Manchester ..	8.13
St. Ann	9.20	Clarendon ..	7.75
Trelawny	5.54	St. Catherine ..	8.25

CITY OF KINGSTON.

The total rainfall for February was 3.77 inches, and the 60-year normal 0.61 inch, representing an excessive rainfall of a little more than six times that of the normal. This abnormal rainfall was exceeded, during the past 63 years, only in February, 1879, when a total of 3.93 inches was gauged, and shewing a difference of merely 0.16 inch. It maybe stated that February occupies, in the Tables, the least mean rainfall of all of the months of the year. The greatest rainfall in 24 hours was 1.40 inch on 17th. The total number of rainy days was 9, as compared with the 49-year average of 4. The upper boundary of Kingston recorded 2.95 inches with 10 rainy days."

RAINFALL IN THE CHRISTIANA-DEVON POTATO DISTRICT OF MANCHESTER.

We have been very kindly provided with rainfall figures of one of the large properties adjacent to Christiana for the potato growing season of this year. The total rainfall from the 29th January to 6th May was 33.87 inches and there were 30 rainy days well distributed over the entire period. The resulting humidity can well be understood to have been high and continuous, providing just the ideal conditions for the growth of disease fungus such as has caused late blight of potatoes and the hitherto unknown pimento disease.

MARKETING NOTES.

We publish below extracts from the Weekly Fruit Intelligence Notes of the 14th March, 1934, showing imports of raw fruit into France, and we draw the attention of our readers to the fact that despite depression and business dislocation, and to a lesser extent, unemployment, the consumption of our raw fruit by European populations is not lessening.

Whilst the consumption of temperate climate produced fruits remain stationary in volume and in many instances is on the decrease, it is noteworthy that the consumption of tropical fruits continues on the upgrade. *This should be a very encouraging fact to tropical fruit producers.*

Imports of Raw Fruit into France.

(Thousands of tons).

Description.	1928.	1929.	1930.	1931.	1932.	1933.
Oranges ..	157	103	162	166	198	257
Mandarines ..		26	42	43	39	54
Lemons ..		19	21	23	24	30
Bananas ..	109	126	181	211	221	197
Apples ..	22	33	41	71	61	34
Pears ..		4	9	22	17	13
Grapes ..	10	9	17	18	20	16
Peaches and Apricots ..	7	5	17	27	25	9
Total ..	305	325	490	581	605	610

The expansion in imports of citrus fruits continues unchecked. In the space of four years imports of oranges have become two and a half times as great, while imports of mandarines have doubled. Imports of lemons increased during the same period by nearly 60 per cent. On the other hand, imports in 1933 of the other fruits shown in the table declined as compared with 1932. Imports of bananas were lighter than in either of the two previous years, but there has nevertheless been a remarkable growth in imports of this fruit, which, as comparatively recently as 1927, amounted to only 79,000 tons. There was a rapid increase in imports of apples and pears in the years immediately preceding and including 1931, in which year they reached a record high level, but the decline in the last two years has been almost as rapid. Imports of grapes, peaches and apricots after rising to record heghts in 1932, declined in 1933 to below the 1930 level.

Imports of raw fruit into France are predominantly from countries outside the British Empire, but the growing trade in imported fruit is of considerable importance to Empire countries, not only because it offers a prospective market for Empire supplies, but also because it provides an additional outlet for foreign fruit which would otherwise come to the United Kingdom. Spain normally supplies more than 90 per cent. of the total imports of oranges into France, and Spain

and Algeria together account for the bulk of the imports of mandarines. Italy and Spain together supplied practically all the lemons imported in 1933 in the proportion of 54 per cent. and 44 per cent. respectively of the total. More than 60 per cent. of the total imports of bananas consist of Canary Islands produce, and the bulk of the remaining supplies are imported from Colombia, Central American countries, French West Africa and other French possessions.

(*Weekly Fruit Intelligence Notes*, 21*st March*, 1934.)

* * * *

The export of bananas from Honduras totalled 30,900,000 bunches in 1931, 25,400,000 bunches in 1932 and 20,700,000 bunches in 1933.

This banana country also experienced divers wheather conditions such as floods, storms and droughts.

Ed.

The *apparent consumption of* fresh fruit *in the United Kingdom* during 1933 was greater than ever before. Figures published on page 16 show that the available supplies, home grown and imported, were equivalent to 86.6 lbs. per head, as compared with 79 lbs. in 1932, and 85 lbs. in 1930, when the previous record was established. The increase over past years was mainly due to the exceptionally heavy imports of oranges, the apparent consumption of which amounted to 27 lbs. per head. The consumption of apples was 24.6 lbs. per head or slightly below the average for the previous six years.

Weekly Fruit Intelligence Notes, 21*st March*, 1934.)

Fresh Fruit Supplies and Consumption.

	1927.	1928.	1929.	1930.	1931.	1932.	1933.
	Thousand cwts.	*Thousand* cwts.	*Thousand* cwts.	*Thousand* cwts.	*Thousand* cwts.	*Thousand* cwts.	*Thousand* cwts.
Net imports (*a*) ..	21,967	25,515	23,919	24,589	27,714	27,028	28,334
Home production less exports (*b*) ..	9,590	5,875	10,020	9,862	4,862	5,806	8,560
Add or deduct to allow for carry over of apples ..	−773	+488	−651	+395	+379	−150	−60
Net supplies ..	30,784	27,878	33,378	34,846	32,955	32,684	36,834
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
Consumption per head ..	75.9	68.5	81.8	85.0	80.1	79.0	88.64

(*a*) Excluding nuts, but including bananas at 34 lbs. of fruit per bunch.

(*b*) Excluding cider apples and perry pears.

According to these figures fruit consumption reached a new high level in 1933, the apparent consumption per head being estimated o h 88.6 lbs., as compared with 79 lbs. in 1932, and 85 lbs. in 1930, or the the previous record was established. The figures of course nd the fruit used for all purposes, not only for household consumption,

but also for preserving, and they take no account of consumption of imported canned and dried fruits and of fruit pulp used for jam making, imports of which have also tended to increase in recent years.

The estimated quantity of each kind of raw fruit available per head of the population in each of the past seven years is given in Table II. The figures have been arrived at on the same basis as the *per caput consumption* figures in Table I (home production and imports, less exports and re-exports, with adjustment for carry-over of the home apple crop).

TABLE II.—*Estimated Quantity of Raw Fruit available per head of Population.*

Description of Fruit.	1927.	1928.	1929.	1930.	1931.	1932.	1933.
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
Apples ..	27.0	22.5	27.8	26.1	22.5	25.3	24.6
Bananas ..	9.2	9.3	10.6	10.6	11.5	12.3	11.5
Cherries ..	1.1	0.7	1.1	1.3	0.8	0.7	1.1
Currants ..	1.1	0.9	1.2	1.2	1.0	0.7	0.7
Gooseberries ..	1.8	1.6	1.7	2.2	1.7	1.3	1.2
Grapefruit ..	0.9	1.1	1.3	1.3	2.1	1.8	1.8
Grapes ..	1.7	2.0	2.0	1.6	2.3	2.1	1.8
Lemons and Limes	3.0	2.7	3.2	3.5	3.3	3.4	4.3
Oranges ..	18.8	18.4	21.9	23.4	24.2	21.8	27.0
Pears ..	4.3	2.8	3.8	3.2	3.4	3.1	3.3
Plums ..	3.9	3.5	4.2	7.1	2.8	2.4	7.6
Raspberries ..	0.5	0.4	0.5	0.8	0.8	0.8	0.8
Strawberries ..	1.3	1.3	1.2	1.3	2.1	1.7	1.5
Other fruits ..	1.3	1.3	1.3	1.4	1.6	1.6	1.4
Total ..	75.9	68.5	81.8	85.0	80.1	79.0	88.6

Of the fruits grown in this country it may be said that apparent consumption is influenced far more by the volume of the home output than by imports. When crops are light imports may be increased, but not to a sufficient extent to make up the deficiency as compared with a good crop; similarly, when crops are heavy imports are likely to be reduced, but by a much smaller proportion.

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Table I shows imports of the six principal raw fruits into Sweden in the six years, 1928 to 1933.

TABLE I.—*Imports of Fruit into Sweden.*

Description.	1928.	1929.	1930.	1931.	1932.	1933.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Apples ..	18,690	21,400	14,640	17,770	17,120	9,610
Pears ..	6,950	7,940	5,020	12,230	5,110	4,010
Grapes ..	1,390	1,670	1,820	2,130	1,930	1,670
Oranges ..	13,870	15,400	26,020	27,750	26,160	32,950
Lemons ..	1,520	1,620	2,150	2,330	2,030	2,260
Bananas ..	10,500	12,950	13,890	12,680	10,050	7,310
Total ..	52,920	60,980	63,540	74,890	62,400	57,810

(*Weekly Fruit Intelligence Notes, 28th February*, 1934.)

LOCAL PRODUCE PRICES.

Cocoa—Ordinary ..	18/- delivered Kingston
Fair Fermented	18/- " "
Estates fermented	19/- " "
Coffee—Market still quiet	
Good ordinary	40/- " "
Fine ordinary ..	42/- " "
Manchester-B ..	42/- " "
Manchester—A	44/- " "
Ginger—Rhatoon ..	38/- " "
Ordinary ..	48/ " "
Medium ..	50/- " "
No. 1 ..	60/- " "
Honey—White ..	2/6 per glu. delvd. Kingston
Paie ..	2/- " " "
Light ..	1/9 " " "
Dark ..	1/6 " " "
Kolanuts—Sound quality, well cured	4/- delivered Outport 5/- delivered Kingston
Orange Oil—Sweet—sound quality	2/9 per lb. delivered Kingston
Sarsaparilla—Well cured, red roots	38/- per 100 lb. net weights, delivered Kingston.
Wax—Pure and clear	7d. per lb. net weights, delivered Kingston

TOMATOES.

The Canary Islands at certain periods of the year entirely monopolizes the import market of England for tomatoes. There should certainly be space for us.

During week ending 24th March, of a total importation of 47,391 cwts. of fresh tomatoes, 47,380 cwts were from the Canaries; the succeeding week of 8,192 cwts, 8,179 cwts were from the same source. South Africa and the Argentine evidently sending forward small experimental shipments. We are delighted to note the interest in this matter of our Department of Science and Agriculture who are sending forward several experimental shipments.

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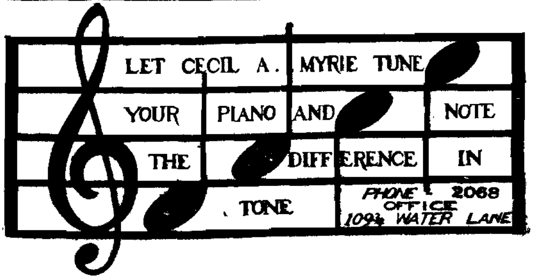

THE WINNING ENTRY FOR OUR RECIPE COMPETITION.

By Mrs. R. J. Perkins, Claremont,—*Continued*.

Friday's Menu.

Breakfast.—Mangoes or other fruit, green corn porridge, puffy omelette, French toast, rice fritters, lettuce, guava dolce, tea, coffee or cocoa.

Lunch.—Onion soup, salt fish and ackee, liver and bacon, sweet potato caramel, boiled yellow yam, boiled and buttered beans, lettuce and tomato salad with boiled salad dressing, coconut pudding.

Tea.—Bread and butter, Parker House rolls, banana buns, orange jelly.

Dinner.—Creole soup, broiled fish, roast duck, stuffed potatoes, rice and peas, string beans, pumpkin pie, orange water ice.

Recipes for Friday's Menu.

Breakfast.

Green Corn Porridge.—Grate as many green corns as required, put on to boil in a small quantity of water, enough not to let the corn burn, and add some milk, boil until tender, eat with sugar and cream or milk.

Puffy Omelette.—½ quantities may be used—Separate 4 eggs, mix ½ teaspoon salt, ⅛ teaspoon pepper, 2 teaspoons baking powder, 1 tablespoon cornstarch, and ½ cup milk with the 4 yolks; beat whites until light, but not dry; mix in well with yolks; put into greased hot frying pan, and cook slowly until well puffed up. Dry out in oven; put any cooked minced meat or fish in the middle, then fold over in half. Better to add the meat or fish before drying out, which can be altogether omitted. Jam added instead of meat makes this into a sweet dish.

Rice Fritters.—An egg, a little butter, salt and pepper added to any left over boiled rice, mixed together and dropped by spoonfuls in hot fat and fried.

French Toast.—½ cup flour, 1 teaspoon baking powder, ¼ teaspoon salt, ½ cup milk, 1 egg, sliced bread; sift dry ingredients, add milk and beaten egg, beat well; into this dip bread, fry in hot fat; drain; serve hot, with or without powdered sugar.

Guava Cheese.—Choose large ripe fruit. Wash, cut off the tip of each end, put on to boil in just enough water to cover and as soon as soft take off the fire and rub through a seive; measure 1 cup sugar to each cup pulp, boil all together, stirring *continually* until the mixture 'leaves the preserving pan'. Pour quickly into shallow vessels and when cold, cut any shape desired.

Lunch.

Onion Soup.—Cook 2 cups finely chopped onion with 2 tablespoons butter or bacon drippings in covered sauce pan, shaking pan often; when onions are tender, add 4 cups rice water or vegetable stock or barley water; boil 5 minutes; add 1 teaspoon salt, ⅛ teaspoon white pepper, and 2 tablespoons parsley (chopped).

Saltfish and Ackee.—Soak 1 lb. saltfish overnight; put it on in cold water to boil (otherwise it hardens) throw off the first water and put it on again to boil. Carefully pick the fruit of about 12 ackee pods, free from all red inside and boil them for about 20 minutes, add them to the salt fish which has then been cut into small pieces, add some lard, butter,

and pepper; onions if liked may be added too, and the saltfish and ackees may be all mashed together.

Liver and Bacon.—Cut liver in thin slices but not *too* thin. Wash, drain, dry and roll in flour; put bacon *thinly* sliced into hot frying pan, turn until brown, and transfer to hot dish. Fry liver quickly in the hot bacon dripping, turning often; when done, put on the dish with bacon; pour off all but 1 or 2 tablespoons fat, add 1 to 2 tablespoons flour and stir until brown; add hot water *gradually* to make smooth gravy; season and boil 1 minute.

Sweet Potato Caramel.—Pare and cut sweet potatoes into pieces; parboil and drain; place in buttered baking dish and dot liberally with butter and sprinkle with brown sugar; bake 30 minutes in moderate oven.

Boiled Salad Dressing.—½ teaspoon salt, 1 teaspoon mustard, 1½ tablespoons sugar, ½ tablespoon flour, few grains cayenne, ½ cup vinegar, 2 eggs, ¾ cup milk, 1 tablespoon butter or oil. Mix dry ingredients in top of double boiler; add vinegar and beaten egg yolks and mix; add milk and butter; cook over hot water until thick and smooth. Take from fire; fold in beaten egg whites—Cool.

Coconut Pudding.—½ teacup grated coconut, ¼ teacup breadcrumbs, ½ pint milk, 2 eggs, 1 oz. butter, 2 tablespoons sugar; beat all well together and bake in a buttered pie dish 1 hour in moderate oven.

Tea.

Parker House Rolls.—4 cups flour, 1 teaspoon salt, 6 teaspoons baking powder, 2-4 tablespoons shortening, 1½ cups milk. Sift flour, salt and baking powder together; add melted shortening to milk, and slowly add to dry ingredients, stirring until smooth; knead on floured board and roll ½ inch thick; cut with biscuit cutter; crease each circle with back of knife one side of centre; butter small section and fold larger part well over small; place 1 inch apart in greased pan; allow to stand 30 minutes in warm place; brush with melted butter and bake in hot oven.

Banana Buns.—Crush and beat up with a fork 3 small or 2 large ripe bananas, add 2 tablespoons sugar and 1 large spoon butter or cheaper shortening, ½ teaspoon mixed spice and add to that 2 level cups flour sifted with 4 teaspoons baking powder. Raisins or currants or both may be added if liked, mix all together and bake in small muffin or cake tins.

Orange Jelly.—Seville Oranges.—Weigh oranges and to each 1 lb. allow 3 pints water. Wash and grate off the rinds, then cut up oranges and put on to boil, when well boiled, measure the juice and for every cup of juice use 2 of granulated sugar, boil until it will jelly. Half a pound of Seville oranges is usually 1 orange, and will give quite a lot of jelly. When the jelly hangs from the spoon it is done, and can be put in moulds or glasses. Stand glass in cold water up to the neck when pouring in hot liquid jelly.

Dinner.

Creole Soup.—¼ cup rice, ½ cup cut onions, 2 tablespoons bacon drippings, ½ lb. soup meat, 2 cups tomatoes, 2 teaspoons salt, 1 teaspoon sugar, 1 green pepper, 1 tablespoon parsley. Boil rice, cook onions in dripping until tender, but not brown, add tomatoes and boil 10 minutes rub through strainer into boiled rice and water; add seasoning and sprinkle with parsley and a little chopped green pepper. (Rice to be boiled in 3 cups water.)

Broiled Fish. Clean, wash, and split removing backbone and fins along edge. Very large fish should be cut into slices; dry with cloth, season with salt and pepper. Cook on well greased broiler from 10 to 20 minutes, turning once. Remove to hot dish; add melted butter and sprinkle with chopped parsley, garnish with slices of lemon and serve.

Roast Duck.—Clean as for chicken. If stuffed, add dressing; sew up and place on rack in roasting pan. Sear in hot oven; reduce heat and finish cooking. After 30 minutes, pour off some of the fat, (Crisco can be used for roasting) and use hot water for the basting. Serve duck with fried apples, apple sauce or cranberry jelly. Guava jelly is also nice, served with duck.

Stuffed Potatoes.—Cut 4 large baked potatoes lengthwise, scoop out insides, and mash with pepper, salt and butter, when smooth, add a little hot milk and melted butter, beat until white and fluffy. Refill potato shells, sprinkle with grated cheese and return to the oven to brown.

String Beans.—String, cut into small strips and cover with boiling water, cook until tender, drain; add pepper, salt and melted butter.

Pumpkin Pie.—Mix 2 cups boiled pumpkin with 2 cups milk, 1 cup brown sugar, 2 beaten eggs, ¼ teaspoon salt, 2½ teaspoons mixed spice, ½ teaspoon ginger, pour into pie tin lined with pastry place in hot oven for 15 minutes, then lower the heat and bake until the filling is firm.

Orange Water Ice.—The juice of 6 oranges, 2 teaspoons orange extract, juice 1 lemon, 1 quart water, 2 cups powdered sugar, ½ cup cream; mix all together, strain and freeze.

Note.—I have not given any reeipe for rice and peas as all Jamaican cooks know how to do this.—C.M.P.

Saturday's Menu.

Breakfast.—Farina, grape fruit, baked macaroni and cheese, Parker House rolls left from yesterday's tea, reheated and eaten with tomato jam, milk or pine juice.

Lunch.—Beef soup with vermicelli, roast beef with Yorkshire pudding, baked potatoes, roasted plantains, and avocado pears, sweet potato pudding.

Tea.—Lace cakes toasted and buttered, ginger bread.

Dinner.—Salmon loaf, cold roast beef with carrots, yam balls, roasted breadfruit, cho cho pudding.

Breakfast.

Farina, this can be bought and prepared much the same as any other porridge, and is a cassava product.

Baked Macaroni and Cheese.—Boiled macaroni in salted water until soft (1 cupful), drain and put into a buttered pie dish, cover with sauce made as follows: melt 1 tablespoon butter in saucepan, add 1 tablespoon flour, and 1 cup milk, slowly, stirring until smooth, add ½ cup grated cheese, 1 teaspoon salt, ⅛ teaspoon pepper, boil 2 minutes and throw over macaroni, cover top with grated cheese and bake 20 minutes.

Tomato Jam.—Choose sound ripe fruit, quarter, core, and peel them, and put in a preserving pan with an equal weight of cane white sugar; when this jellies on the spoon, pour it in pots and cover at once.

Lunch.

Beef Soup.—Put on 1 lb. of beef or more (according to size of family) in cold water, 2 quarts to every 1 lb. and boil down to half, season with salt, pepper, skellion and thyme, a few small Irish potatoes and when nearly done, throw in some vermicelli; allow to boil up until vermicelli is tender.

Yorkshire Pudding.—Mix 1 pint milk with 4 heaped tablespoonfuls of flour into a smooth batter, add 2 eggs, salt and pepper; beat up well, let stand a few minutes before placing in a very hot greased pan; bake in a moderate oven for 20 minutes.

Sweet Potato Pudding.—1 cup potato (peeled and grated) 1 cup sugar, 1 cup water, ¼ lb. butter or cheaper substitute, ½ teaspoon powdered ginger, ½ teaspoon mixed spice; some currants and raisins; mix all, put in a buttered baking dish. Bake 1 hour.

Tea.

Ginger Bread.—½ cup shortening, ½ cup sugar, 2 eggs, 2½ cups flour, 2 teaspoons Royal baking powder, ½ teaspoon soda, ½ teaspoon salt, 1 teaspoon ginger, 1 teaspoon cinnamon, ⅛ teaspoon nutmeg, 1 cup molasses, 1 cup boiling water—cream shortening, add sugar, mix well; add well beaten eggs. Sift together all dry ingredients. Add to first mixture with the molasses. Add boiling water last; pour into well greased shallow pan. Bake in moderate oven for about 45 minutes.

Dinner.

Salmon Loaf.—Flake out 1 can of salmon, grease a baking dish, put in a layer of cracker or bread crumbs, than a layer of salmon, mix 2½ tablespoons flour with 2 tablespoons margarine (or 1 butter) 1 pint of milk and 1 egg, salt and pepper to taste: pour some of this dressing over and continue to put the layers and dressing until the dish is full, then sprinkle fine crumbs on top and bake. A small 1 lb. can of salmon will do if family is not large.

Yam Balls.—One large slice any kind of yam, boil and mash it well with some butter, salt, and black pepper and one or 2 eggs beaten; form into balls and fry, if 1 egg is used a little milk may be added.

ChoCho Pudding.—Mix 4 ozs. bread crumbs with 4 ozs. currants and 3 tablespoons sugar together; add 2 large chochos previously boiled, mix all together with 2 well beaten eggs; pour into a buttered mould or shut pan, cover and steam for 2 hours. Serve with a pudding sauce.

Sunday's Menu.

Breakfast.—Cornflakes or puffed rice with honey and milk, fruit, stuffed garden eggs, baked potatoes, bread and butter, soft boiled eggs, banana jam, milk or cocoa.

Lunch.—Pepper-pot, rice and shrimps, cold roast beef, vegetable salad, roasted yampees, sliced bananas with cream and sugar.

Tea.—Thin bread and butter, gingerbread left over from yesterday's tea.

Dinner.—Bean soup, beef roll, curried ackees, boiled pumpkin, mashed and buttered, boiled rice, plantain tarts, made from Saturday, iced pine drink.

Sunday's Menu.

Breakfast.

Stuffed Garden Egg.—1 large garden egg, minced beef from the roast, butter, pepper herbs. Cut a large garden egg lengthways, take out the inside, leaving the backs to form a sort of dish; boil the pulp tender and mix with well seasoned mince; put back into the backs, bread crumbs over top with dabs of butter on it, and bake.

Banana Jam.—To every 12 bananas, not too ripe, and to every six sweet oranges and 4 lemons, allow ¾ lb. preserving sugar. Peel bananas and cut into round slices; boil slowly for ¾ hour; squeeze the oranges and lemons on a glass squeezer.

Lunch.

Pepperpot.—1½d. worth each of okra, kale, callilu, a few tomatoes, 1 white coco, 1 country pepper, thyme, skellion, and onion to taste, a piece of salt pork, and bones of soup meat; put all on with 2 quarts water, having tied kale and callilu together; when tender rub through a colander and return to the pot, strain before serving. Shrimps or black crabs added is a great improvement.

Shrimps and Rice.—Boil and pick the shrimps; put the rice to boil in the same water; add a generous supply of onions, tomatoes and other seasoning liked, and add a little butter.

Vegetable Salad.—1 cup finely cut cabbage, 1 cup cold boiled beets, 1 cup cold boiled carrots, 1 cup cold boiled potatoes, 1 head lettuce, 1 cup French dressing. Soak cabbage in cold water 1 hour, drain and add beets, carrots, potatoes; mix well together; season with salt and pepper and serve on lettuce leaves. On top put slices of hard boiled eggs and serve with French dressing to which may be added 1 teaspoon onion juice.

French Dressing.—½ cup salad oil, 2 or 3 tablespoons vinegar or lemon juice, ¼ teaspoon mustard or dash of cayenne, ½ teaspoon or more salt, 1 teaspoon sugar, few drops Worcestershire sauce or Pick-a-peppa. Put all ingredients into a covered glass jar and shake until thick and well blended. Serve very cold.

Dinner.

Bean Soup—2 cups beans, 2 tablespoons finely cut onion, 2 tablespoons finely cut bacon, 1 teaspoon salt, ⅛ teaspoon pepper, 2 tablespoons chopped parsley, 1 teaspoon thyme, 3 tablespoons flour. Soak beans in water overnight; drain, put into saucepan with 6 cups boiling water, and boil slowly 2 hours or until soft; add onion and bacon fried light brown, boil 5 minutes, add salt and pepper with herbs; mash beans; add flour mixed with a little cold water. Boil five minutes more.

Beef Loaf.—Mince beef, season with minced onion, pepper, salt, thyme, butter, 1 egg, bread crumbs, about a teacupful, form into a loaf cover the top with slices of salt pork or butter; put in a pie dish and bake in a good oven until brown. Serve with a thickened gravy.

Plantain Tarts.—Boil very ripe plantains; mash them very smooth; sweeten to taste; add spice and a little lime juice, colour with cochineal; put on rounds of thin pastry, wet edges, fold over and bake.

HOUSEHOLD HINTS.

The Curing of Bacon.—(*The recipe of a Jamaican Lady*).

To 6 lbs. Pork, get a good square cut of belly, removing all bone from it, and see that it has good lean among the fat. Take 2 table spoons sugar, ½ teaspoon salt petre; 1 lb. table salt, 1 table spoon beaten pimento; mix sugar and salt petre and rub well into the pork then take half the salt and the pimento and rub well into the prok being careful to rub it *all over*. Put into a basin and leave till next day, each day take out and rub in more salt and turn, do this for 4 or 5 days then put the pork on a flat surface with a piece of board over it and press under a heavy weight for 3 or 4 days. The bacon is now ready to sew up in a bag and hang up to smoke for about 3 weeks when it should be sufficiently cured.

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From 6 or 7 Weeks to 4½ or 5 Months

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Feed same as above but use PIONEER BATTERY Chick Mash in place of Pioneer Chick Mash and PIONEER FATTENING MASH in place of Pioneer Growing Mash and Pioneer Laying Mash

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POULTRY NOTES.

IMPROVEMENT BY BREEDING.

The important necessity in the improvement of poultry and in fact any livestock is the selection of the individual specimen to be used for breeding. There are, of course, other factors such as proper feeding and care, but however good, however, excellent the stock with which you start or which you acquire as the years go on, for the improvement of your strain, unless the most rigid and careful selection of the individual specimens for breeding that possess in good measure the qualities aimed at is practised, your strain will instead of improving, deteriorate.

The selection of poultry for egg laying propensities requires far greater care and continued observation than most other selections would, such as breeding for flesh, form, feather or weight. The propensity for high egg production results from a combination of very many factors and this is what makes it so difficult to make proper selections. The laying of 200 eggs or over per annum is an immense physical effort on the part of the hen. The weight of 200 eggs is her own weight multiplied many many times. Except a hen is healthy, robust and active this feat is impossible, hence, constitution and vigour must be qualities considered absolutely essential in your selection, and however good the performance is, or pedigree, without these qualities you have not the successful breeder. The rearing of chickens has a lot to do with the production of these qualities as no hothouse methods can produce a really hardy, healthy and vigorous fowl. After this prerequisite is obtained the question of trueness to the type of the breed would enter as this quality is necessary to insure uniformity and breed characteristics. Then comes the record of the performance and here we must fall back on trap nest records, and no good breeder can be without these as without them your breeder cannot be assessed from the standpoint of production. Weight of egg and winter laying ability are also necessary qualities contributing to the first class profit making hen.

This article is written not so much to direct how to breed good fowls but more to indicate to the breeder how much effort and detail is required by the really successful breeder.

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BRANCH NOTES.

ST. CATHERINE: Bellas Gate.—Meeting held 9th April. Present: Messrs. O. P. Martin, Instructor; F. N. Barrett, President; H. Rhone, 1st Vice-President; S. Thomas, 3rd Vice-President; 7 other members, many visitors and the Secretary. After a hymn and a prayer, the President welcomed all present, made some encouraging remarks, and commented on the poor attendance. Minutes of the last meeting were read and confirmed and matters arising therefrom dealt with. The President stated that the Hon. T. J. Cawley, M.L.C., promised to visit the district shortly and would endeavour to bring other members with him. The Instructor gave a valuable address on the needs of agriculture. The chief points were: (1) Co-operation, (2) Information, (3) Coffee fields, (4) Other crops, such as Irish potatoes, (5) More trees. His address was quite instructive, and a vote of thanks was accorded him. Mr. C. L. Stewart gave a very fine address, and he was thanked. A few members renewed their membership, and the meeting closed with the singing of the National Anthem.

Bellas Gate P.O. A. A. McCurdy,
Secretary.

Hampshire.—Annual meeting held 24th April. In spite of a rainy afternoon, there was a fair attendance. Present: Mr. V. P. DaCosta, President, Instructor Martin. Messrs. N. Hudson, 1st Vice-President; C. C. Bryan, 3rd Vice-President and Treasurer, 10 other members and the Acting Secretary. Matters arising from the minutes were dealt with as also correspondence. Three shillings was subscribed towards a presentation to the past Secretary. It was decided that the amount subscribed towards the Ricketts' Presentation Fund should be forwarded to the proper authorities. Mr. Hudson mentioned the Citrus nursery, and Mr. O. P. Martin spoke on the Juvenile Branch, and a Women's Auxiliary Society. Letter from the Auditors was read, and the Treasurer promised to forward to the Secretary his statement of accounts. The Acting Secretary read a report of the past year's doing. Election of Officers resulted as follows:—Mr. V. P. DaCosta, President; Rev. E. A. Greaves, 1st Vice-President; N. Hudson, 2nd Vice-President; Mr. C. C. Bryan, 3rd Vice-President and Treasurer; Mr. E. L. Johnson, Secretary; Miss E. M. Brodber, Assistant Secretary and Mr. E. A. L. Rowe, Reporting Secretary; Auditors, Messrs. A. Leo Fuller and E. A. L. Rowe. A few other matters received attention. Two resolutions recording the appreciation of the Branch of the efforts made by the Parent Society re State Agricultural Banks and also the Branch's appreciation of the high standard of the Journal were unanimously passed. Messrs. Hudson, Johnson, DaCosta and others spoke on these resolutions. The meeting adjourned.

Riversdale P.O. E. A. L. Rowe,
Reporting Secretary.

Marlie Hill.—April 12. The Juveniles had their annual meeting. The Secretary, Miss V. Stewart, read their Annual Report. Mr. E. Hamilton, President, gave his retiring address. Officers for the ensuing year are Mr. E. Hamiltion, President; Miss I. Francis, Vice-President and Miss V. Stewart, Secretary. Arrangements for the 1934 Vegetable Competition Judging and the proposed Juvenile and School Fair were made. A Committee was formed to go into the details. A few lively songs were rendered. Despite rains the attendance was good.

* * * * * *

The Senior Branch held their meeting immediately after. The Instructor gave a rousing address. Mr. Stennette and Mr. C. L. Stuart, B.A., gave valuable talks. Messrs. D. Shaw, O. P. Martin and Miss Stewart contributed lively songs. The attendance was fair despite rains. A Committee was formed to go into the ways of stimulating the Branch. Auld Lang Syne and The King ended the meeting.

Brown's Hall P.O. J. L. Thompson,
Secretary.

Macca Tree.—Annual meeting held 17th April. Present: Instructor Martin, Mr. H. H. Coote, Bee Instructor, 20 members, 50 Juveniles and 20 visitors. The President tendered apologies for absence on behalf of the Hon. T. J. Cawley, Messrs. E. A. McNeil and Glaister Baxter who were invited to address the meeting and expressed great pleasure at seeing such a large gathering. The Secretary's report presented a very exhaustive account of the year's work, and the Secretary was heartily thanked. Mr. Coote's address was brimful of interest and varied knowledge was given on bees. Mr. Martin spoke of forming a Women's Auxiliary to work in conjunction with the Branch. The following officers were elected.—Mr. T. N. Golding re-elected President; Messrs. A. Halstead, G. Warmington and S. Ellis as 1st, 2nd and 3rd Vice-Presidents, respectively. Miss M. J. Fletcher re-elected Secretary; Mr. Charles Bennett, Treasurer; Miss Graham

Assistant Secretary. The Ricketts' Souvenir Fund was discussed. The report of the Juveniles showed that over 50 were entering for the Vegetable Growing Competition. The seedlings were distributed by the President who is busy instructing the Juveniles how to get the best results from these gardens. The meeting terminated with the singing of the National Anthem.

Brown's Hall P.O. M. J. FLETCHER, Secretary.

Upper St. Johns.—Annual meeting held 3rd April. Among those present were Messrs. R. L. Rivett, President; R. H. Bridge, 1st Vice-President; C. A. Brown, 2nd Vice-President; Rev. C. A. Owen, Hon. T. J. Cawley, 1st Vice-President Jamaica Agricultural Society; Glaister Baxter, Secretary Jamaica Agricultural Society; O. P. Martin, Agricultural Instructor, several other prominent gentlemen, and many members and visitors, totalling about 150 people. The minutes of the last meeting were read and confirmed. The Treasurer and the Secretary gave their annual reports. The election of Officers resulted in Mr. R. L. Rivett being made Honorary President; Mr. S. C. M. Bennett, President; Messrs. R. H. Bridge, 1st Vice-President; C. A. Brown, 2nd Vice-President; T. S. Parker, 3rd Vice-President; L. J. Donaldson, Secretary; Miss M. A. Leach, Assistant Secretary; Mr. F. O. Pantry, Treasurer. The Hon. T. J. Cawley and Mr. Glaister Baxter gave addresses which were well received by the members and visitors. The usual votes of thanks were accorded them. A Resolution in respect to postal facilities was drafted to be sent to the authorities. Other matters were dealt with and the meeting adjourned after the singing of the National Anthem.

Point Hill P.O. L. J. DONALDSON, Secretary.

Springfield—Meeting held 10.4.34. President presided. Present: 10 members and Instructor L. A. M. B. Coke. Minutes of last meeting were read and confirmed, and matters arising therefrom dealt with. Four Authorised Persons reported all correct. The Instructor gave his usual address. He emphasized the necessity of the Branch having a Demonstration Plot so as to practise intensive cultivation. Mr. A. S. Ross, 1st Vice-President announced, that he would give 2½ squares of his land for the Demonstration Plot. A day was proposed when all the members should turn out to prepare the plot. Minor matters were dealt with and the singing of The King terminated the meeting.

Carron Hall P.O. S. T. YOUNG, Secretary.

ST. THOMAS: Middleton.—Meeting held 25th April. Eight members were present. The minutes of the last meeting were read, and confirmed. Owing to the indisposition of the Secretary, Miss M. Blake acted. A hearty welcome was extended to the new Instructor, Mr. U. A. McLaren, who in reply thanked the members, and gave an interest ing lecture. He stressed the point "that the Society should be regarded as a Small Farmers' Club" and not merely for discussing agricultural matters. Everyone should be ready to say something, so that there be an exchange of thoughts and ideas, for the benefit of the members and to make the meetings interesting and attractive. A vote of thanks was accorded him. The Annual Meeting was fixed for the 16th May. Correspondence was dealt with. The singing of the National Anthem brought the meeting to a close.

Spring Garden P.O. M. A. BLAKE, Acting Secretary.

Beecher Town.—Annual meeting held April 20. Among those present were: Mr. A. G. Hind, President; Messrs. C. V. Atkinson, Instructor; A. H. McKinzie, Secretary and 15 members. Meeting was opened with prayer. Minutes of the last meeting were read and confirmed. Arising therefrom the Secretary was instructed to write to the Parochial Board re construction of the Chapel Hill Road and the road leading from Beecher Town to Ocho Rios. Matters re Spray Pump and Eddie Wasps were also dealt with. Mr. H. Walker introduced a rotted mintie cocoe head and enquired from the Instructor as to the disease, as it was affecting nearly all his cocoes. The Instructor took the affected plant, some leaves and some cocoes which he promised to send to the Microbiologist for further examination. Bitten leaf disease among cocoanuts was dealt with and methods of treating this disease were fully discussed. Reports of the year's work were received from the Secretary, President and Treasurer, to the satisfaction of the House. Officers were elected for the year 1934-35. Authorised Persons reported all correct. A few other items received attention and the meeting terminated with the National Anthem.

Salisbury P.O. (MISS) I. N. JOHNSON, Assistant Secretary.

Ocho Rios.—Meeting held 17th April. The 2nd Vice-President occupied the chair the President being ill and opened the meeting with prayer. Present also were: L. Isaacs, 1st Vice-President; W. Drummond, Rev. A. E. Brown, and nine other members. The minutes of the last meeting were read and confirmed, and matters arising therefrom

discussed. The Instructor gave an address on the cultivation of Irish potatoes. He said it was a quick crop and is very helpful when food is scarce. He advised as to preparation of the soil for planting, care of the growing potatoes and the best time for planting. He also dealt with reaping and storing of the product. The Instructor was thanked. The Instructor stated that an Association of Branches in St. Ann was being organized and the inaugural meeting would he held early in May. Two new members were enrolled. The Authorised Persons reported many thefts but no arrests. It was arranged that a discussion on the cocoanut disease will take place at the next meeting. The National Anthem brought the meeting to a close.

Ocho Rios P.O. (MISS) B. A. JACKSON,
Secretary.

WESTMORELAND: Blauwearie.—Annual meeting held 18th May. Twenty-four persons attended despite inclement weather. Rev. R. C. Gordon presided. Meeting opened with prayer. The President extended a cordial welcome to all; especially as owing to bad weather there had been no meetings since December, 1933. The minutes of the last meeting were read and confirmed. The question of the Public Water Supply for the district was discussed. Messrs. W. McKenzie and Herbert Smith were deputed to confer with Mr. Harry McKenzie on the question of the right-of-way to the spring, and report at next meeting, so that the Parochial Board could take further action. Correspondence was dealt with and report of Authorised Person received. The *Treasurer's report showed a deficit of 5/6 on the year's working, due to the expenses of* keeping the first boar, kindly given to the Branch by Hon. Dr. Hudson. Election of Officers for the ensuing year resulted in the administration being: Rev. R. C. Gordon, President; Messrs. W. McKenzie, Jos. Jolly and O. G. Dandy, the three Vice-Presidents, with J. O. Ramsay, Secretary and Treasurer. It was reported that the last boar has been giving good service. Rules were adopted after discussion for the future benefit of the keeper of the animal and the Branch. A lengthy, but interesting discussion took place on the subject of yaws. The Journal for February was found very helpful with its statistics and information. It was agreed that the Secretary write the Parochial Board, the M. O. H. and the Police on the matter. Stress was laid on the fact that the sick people could not get medical benefits owing to the great distance they had to walk. Instructor J. A. Graham gave a short but very educative address in which he encouraged all to grow more crops for export so as to balance our foreign trade. He instanced such crops as tobacco, cashew and vegetables. Meat, of course, should be got locally. It was agreed to get a census of the goats in the district and make arrangements to obtain the services of the goat that belongs to the Williamsfield Branch. Meeting closed after singing of National Anthem.

P.O. J. O. RAMSAR,
Hon. Secretary.

Holly Hill.—Annual meeting held 20th April. Present: E. A. Gunter, President, 1st Vice-President, Instructor Marr, Secretary and Treasurer and 5 other members. *Meeting commenced with prayer. Minutes of the last meeting were read and confirmed.* Correspondence from Hon. Dr. Hudson re billy goat was read. A new member was enrolled. A short discussion took place re the keeping of the goat, and he was entrusted to the care of the President with the understanding that members agree to supply the feeding as arranged. The President gave a very encouraging address touching different aspects of agriculture. He said every effort should be made to get useful information out of the Instructor who is always ready and willing to serve everyone. Mr. A. G. Smith also spoke. Election of Officers resulted in the former officers being re-elected One member enquired as to the method of planting pea-nuts, and Instructor Marr explained. The Instructor advised on methods of trenching, and different crops. The Instructor was thanked. The Secretary was instructed to thank the Hon. Dr. Hudson for the billy goat and to say the Branch was ready to receive it at any time. The Roll was called and the meeting closed with the singing of the National Anthem.

Darliston P.O. F. J. COOKE,
Secretary.

Mt. Airey.—Meeting held 19th April. Present: M. H. Segre, President; C. H. Lynch, 1st Vice-President; J. A. Graham, Instructor; several members and visitors and the Secretary. Minutes of the last meeting were read and confirmed and matters arising therefrom discussed. The President announced that the boar for the Branch had been procured by Mr. Harper Watson. The Secretary was advised to send a letter of thanks to Dr. Seaton for having helped the Branch financially to secure this animal. Officers for the new year were elected as follows:—M. H. Segre, Esq., *President;* C. H. Lynch, Esq., 1st Vice-President; F. Forest, Esq., 2nd Vice-President; A. McKenzie, Esq., 3rd Vice-President; Miss C. L. Lynch, Secretary and Miss I. Froome, Treasurer. The President enumerated the work of the Branch since it was founded in 1927, and proved that it has justified its existence. Mr. Graham spoke on the tobacco industry and

instructed the people how to cultivate, grade, and cure this product properly. The meeting adjourned with the singing of the National Anthemn.

Negril P.O. (Miss) C. L. Lynch,
Secretary.

Williamsfield.—Annual meeting held April 25. Present: Mr. C. Emnl. Thompson, (President) Mr. J. A. Graham, Agricultural Instructor, numerous members and visitors and the Secretary. The minutes of the previous meeting were read and confirmed and matters arising therefrom were discussed. Instructor Graham inquired regarding the number of goats served by the Saanen ram since he was brought to the district. Mr. Lofters promised to provided the information at the next meeting. Correspondence was dealt with and new members enrolled. Officers to serve the Branch for the ensuing term were elected. Instructor Graham referred to the adverse trade balance and intimated that the imports of the country were exceeding the exports. He encouraged his hearers to cultivate a variety of crops. He stressed the culture of cashew and tobacco. He made reference to the importation of condensed milk. and encouraged his hearers to rear a good breed of goats and automatically buy less condensed milk. Authorized Persons, Grant and Calame reported arrests and exhibited their implements in good order. The Secretary was instructed to write the Parent Society re the implements of Messrs. Hill and Wedderburn. After minor matters were dealt with the singing of the National Anthem terminated the meeting.

Glen Islay P.O. R. A. Hylmann,
Secretary.

MANCHESTER: Comfort Hall.—Meeting held 3rd April. Instructor Kelly was present; Mr. D. D. Palmer was elected President; Mr. Arthur Nash 1st Vice-President; Orville White, 2nd Vice-President; W. A. White, Secretary; Miss B. C. Williams, Assistant Secretary; Mr. C. Hendricks, Treasurer; L. Newman, V. Harmon and J. T. Alberga were placed on the Managing Committee. The Instructor urged the Branch to Co-operate and make a big effort to put the Branch on a satisfactory footing. He also enumerated benefits to be derived from the Society and through co-operation. The meeting was unfortunately interrupted at this stage and had to be terminated.

Comfort Hall P.O. W. A. White,
Secretary.

Maidstone.—Meeting held 24.4.34. Present: Rev. J. A. Black, President; T. R. Roberts, Vice-President; Mrs. M. Atkinson, Treasurer and Acting Secretary; H. A. Darby, Instructor, four visitors and several members. After prayer, the minutes of last meeting were read and confirmed. Officers for ensuing year were elected as follows:— Rev. J. A. Black and T. R. Roberts, President and Vice-President, respectively. Mrs. D. A. Wellington, Secretary, and Miss S. A. Thomson, Treasurer, in place of Mr. and Mrs. O. B. Atkinson, whose services amongst us were commented on in appreciative terms, they having gone to labour elsewhere. Messrs. Wellington and Roberts were appointed delegates to Half-Yearly Meeting of the M. B. A. The Instructor gave us an instructive and interesting address on coffee cultivation, illustrated by drawings on the blackboard; and in which three members took part. The meeting expressed satisfaction at the quality of seed-corn the President received a few days ago for distribution, as being the best ever reaching this Branch, the only regret being that it did not come in March. The singing of the National Anthem brought the meeting to a close.

Maidstone P.O. T. R. Roberts,
Reporting Secretary.

CLARENDON: Crooked River.—First annual meeting held April 13th. Rain prevented a good attendance. Mr. D. C. Scott, 1st Vice-President presided. Instructor Shirley and twelve members were present. Reading and confirmation of the minutes of the last meeting, and matters arising therefrom were dealt with. Correspondence was read re affiliation of Branch with the Clarendon Branches Associated. Mr. R. A. Saunders was appointed delegate to the Half-Yearly meeting of the C. B. A. Resolutions re prices of sugar cane to settlers and proposing a Coffee Growing Competition in the parish were drafted to be sent to the C. B. A. The Secretary's Report was read and adopted, and a vote of thanks accorded. Treasurer's report was also presented, but adoption was deferred. All officers were re-elected for the ensuing year. Mr. A. T. Anderson, an Authorised Person gave a favourable report, and presented his handcuffs for examination in good order.

Crooked River P.O. A. M. Smith,
Secretary.

Mitchell's Hill.—Annual meeting held 19th April. Present: Messrs. A. D. Thomas, President; J. Watts, 1st Vice-President; A. Mitchell, 2nd Vice-President; Instructor Shirley; Miss M. L. Robotham, Assistant Secretary, 40 other members and visitors and

the Secretary. The minutes were read and confirmed. As arising from the minutes, matters re the improvement of Parochial Roads Nos. 44 and 54 were discussed. The meeting unanimously decided to ask the Hon. J. A. G. Smith to receive a deputation re these roads. The matter regarding the improvement of the breed of pigs in the district came up for discussion. During the meeting a telegram from the Secretary of the Parent Society was received explaining his inability to be present at the meeting as previously arranged. The Secretary read his report on the year's work. The report was adopted and the Secretary received the thanks of the House. Following this the Treasurer read his report, the adoption of which was deferred owing to lack of time. A resolution re help for the Instructor in his district was passed, and the Secretary instructed to send same to the Clarendon Branches Associated. The Election of Officers resulted as follows:—Mr. A. D. Thomas, President; Mr. J. C. Watts, 1st Vice-Peresident; Mr. A. Mitchell, 2nd Vice-President; Mr. E. Mitchell, 3rd Vice-President; Mr. T. A. Heslop Secretary; Mr. Basil Bailey, Treasurer; Miss M. L. Robotham, Assistant Secretary. The Executive Committee was appointed as in the previous year.

Rock River P.O. T. A. Heslop,
Secretary.

Tweedside.—Annual meeting held 23.4.34. Present: Instructor M. N. Thompson, Messrs. M. E. Coore (President); H. C. Shaw, J. S. Simmonds and E. D. Brown (Vice-Presidents), W. D. Fearon, Treasurer; O. A. Malcolm Secretary; E. W. Boyd, Assistant anf Reporting Secretary; 20 other members and a few visitors. Meeting opened with hymn and prayer followed by the President's welcome address. The Secretary presented a masterly report showing eight outstanding achievements of the Society for the year. The Election of Officers resulted as follows:—Mr. E. H. Coore, President; Messrs. M. E. Coore, H. C. Shaw and E. D. Brown, (Vice-Presidents); the Treasurer, Secretary and Assistant Secretary being re-elected. Roll Call, payment of fees and enrolment of six new members followed. A short and appealing talk on citrus growing was given by the Instructor. The meeting adjourned with the National Anthem.

Alston P.O. E. W. Boyd,
Assistant Secretary.

TRELAWNY: Deeside.—Annual meeting held 4th April. Present: The Officers of the Branch, Instructor F. W. Kelly, sixteen members, also a goodly number of visitors among whom were Rev. R. A. L. Knight and Mrs. G. H. Wakeland. After a prayer the minutes of the previous meeting were read and confirmed. Matters arising therefrom were dealt with re Authorized Persons; cane tops and giant plantain suckers. Letter from the Parochial Board acknowledging appreciation of work done and promising to continue work on other streets as soon as funds permitted was read and noted. Stephen Bell was nominated an Authorised Person. Committee appointed to make suggestions for a local Show reported, and it was decided to hold a joint Show among the Deeside, Wakefield and Bunker's Hill Branches. On being asked, the Rev. R. A. L. Knight gave a brief but forceful speech on the advantage of being a small settler. He urged members to settle on their own lands. He also spoke of the importance of the Society and pleaded for a larger membership. A vote of thanks was duly accorded him. Messrs. J. Brown, S. Johnson, L. Neilmeyer and W. D. Miller were added to the personnel of the Show Committee. A creditable report was received from the Authorised Persons. The Acting Secretary read his Annual Report for which he was thanked. The Treasurers' financial statement showed a net balance of 14/6. All the officers for the past year were thanked for their servieces. The following were elected to serve for the ensuing year:—John Haye, President re-elected; H. Scott, 1st Vice-President; E. Murray, 2nd Vice-President; D. B. Clarke, 3rd Vice-President; E. A. Morle, Secretary; Alfred Wright, Assistant Secretary; Joseph Brown, Treasurer. It was agreed that the Parochial Board be asked to make Mr. E. A. Morle a Ticket Distributor for poor relief for the district. There was some discussion on the advantage of securing a billy goat for the Branch. The Instructor gave valuable information on the matter, and advised getting a Toggenbarg ram. After the singing of the National Anthem, the meeting adjourned.

Deeside. E. A. Morle,
Secretary.

HANOVER: Hanover Windward.—Annual meeting held 21st April. Present: 8 members, 5 visitors and Instructor C. C. Hastings. The President, Mr. S. A. Hill, extended a hearty welcome to those present. At this stage a budding demonstration was carried through by the Instructor, and many of the members availed themselves of the opportunity of "trying their hands" at budding after the demonstration The minutes of the previous meeting were read and confirmed and matters arising therefrom discussed. This being the Annual Meeting, the President gave a resumé of the past year's work. Re Election of officers: Mr. C. Chambers was unanimously elected as President, Mr. S. A. Hill, 1st Vice-President, Mr. L. Jarrett, 2nd Vice-President and Mr. G. Grizzle,

3rd Vice-President. The Secretary and Treasurer gave reports on the working of the Society and its finances. The reports were adopted and the Secretary was thanked and re-elected for the dual positions. The Instructor gave a very exhaustive and practical lecture on rotation of crops. This was well received, and he was thanked. The need of a J.P. for the districts served by the Branch was discussed and the meeting felt that no better person could be found for this position than Mr. C. C. Hastings and much against his wish the meeting agreed to ask the Board of Management to allow him to fill the position if he were appointed. The President, the Secretary, the 1st Vice-President, Mr. C. Woode, and Mr. M. Cunningham were elected delegates to the meeting of the Hanover Branches Associated. Some minor matters were dealt with and the meeting terminated.

Great Valley. J. Z. MALCOLM,
Secretary.

ST. JAMES: Hopeton.—Annual meeting held 19th April. Present: Messrs. J. H. Hines, President; A. A. Hart, 1st Vice-President, Rev. J. A. Jones; President of Springfield Branch; Mr. A. B. Lowe of Adelphi, Messrs. W. D. Marr, Acting Instructor; A. R. Clarke, Secrettary, A. R. Hart, Assistant Secretary; Edward Henry, Treasurer, other members of the Branch and a large number of visitors. The President opened the meeting with prayer and extended a warm welcome to Rev. J. A. Jones, who had been invited to preside at the meeting, and Mr. A. B. Lowe who also attended by invitation to give an address. Rev. Jones after expressing his pleasure on being able to attend gave a masterly address, the main points of which were (1) Cultivators should be proud of their position as world suppliers. (2) Cultivators must be students. (3) Cultivators must be business men. The minutes were read and confirmed. Correspondence was taken. The gist of the circular from the Parent Society re new list of members, etc., was given by the Secretary. Reports on the year's work were giveu by the President and the Secretary and a statement on the finances of the Branch was also read. Mr. Lowe was introduced by the Chairman. His address was a comprehensive one on Land, Capital, Labour, Markets, Knowledge. The prosperity of Jamaica was bound up in the land, be said. People to be prosperous must have lands which should be utilised and made to yield abundantly by intelligent cultivation. Cultivators should acquire knowledge of the soils, crops and markets. Mr Lowe also touched upon many other aspects of his subject and closed by encouraging members to co-operate and work hard to derive success commensurate with the energy they expended. A vote of thanks was conveyed to Mr. Lowe. Rev. Jones also received hearty thanks for his address and for conducting the meeting in such an able manner. All the Officers for 1933-34 were unanimously re-elected. The Instructor spoke on the necessity for having an Association of Branches and told of plans for the inaugural meeting. It was decided that the Branch should be one of those forming the Association and delegates were elected to attend the meeting on the 19th May. The meeting was brought to a close by "The King."

Montego Bay P.O. A. R. CLARKE,
Secretary.

ST. ANDREW: Lawrence Tavern.—Meeting held April 3rd. Present: President, Rev. C. S. Shirley, Messrs. W. B. Freckleton, and W. B. Spauldings, 1st and 2nd Vice-Presidents; A. P. Hanson, Instructor, A. O. Soutar, J.P., about 12 other members and visitors and the Secretary. The chief item on the Agenda was a lecture by the Instructor on Mosaic Disease. After minor and routine matters were gone through the Instructor gave his address under the following headings—History of the disease, methods of combating it, Canes which are immune, resistant and those easily infected. Samples of canes were used to illustrate in detail to the satisfaction of all present the nature and extent of the disease. The Instructor was heartily thanked for his instructive and interesting lecture, the President asking the Instructor in commenting whether there was any connection between Mosaic Law, Mosaic Dispensation and Mosaic Disease. The Election of Officers for the ensuing year resulted as follows: Rev. C. S. Shirley President (re-elected), Mr. W. B. Freckleton, 1st Vice-President and Mr. B. Spauldings, 2nd Vice-President, both re-elected, Mr. W. Shirley, Secretary, Miss P. Donaldson, Assistant Secretary, Dispenser F. E. Marshall, Treasurer. After the newly elected officers had expressed their pleasure and willingness to serve, Mr. O. A. Soutar gave a short address. The following were appointed Managing Committee. All the officers just elected together with Corporal Lowe, Messrs. Geo. Forrester, A. O. Grant and Mrs. I. V. Shirley. Meeting closed with the singing of the National Anthem.

Lawrence Tavern P.O. W. H. SHIRLEY,
Secretary.

PORTLAND: Maidstone.—Inaugural meeting held 26th April. Present were: W. Harper Watson, Esq., J.P.,M.P.B., a member of the Board of Management, Mr. M. L. J. Williams, Organiser, thirteen paid-up members and nine visitors. After a prayer, the Organiser, Mr. M. L. J. Williams, welcomed those present and told of the

several unsuccessful attempts made by Mr. Buckley and himself to have the Branch inaugurated previous to the former's retirement. He said 27 persons had paid in their membership fees. Officers were elected as follows:—

Hony. President, Mr. W. Harper Watson; President, Mr. N. Vincent Thompson; 1st Vice-President, Mr. Reuben Williams; 2nd Vice-President, Mr. Arthur Roper; 3rd Vice-President, Mr. Benjamin Somers; Treasurer and Secretary; Mr. M. L. J. Williams; Assistant Secretary, Mr. Isaac Somers. Managing Committee—Messrs. N. V. Thompson, R. Williams, A. Roper, B. Somers, M. L. J. Williams, L. Thompson and Mrs. Charlotte McGaw. Short speeches were made by the newly elected Officers who promised to work whole-heartedly for the progress of the Branch. The Secretary outlined some of the benefits which can accrue from a successful Branch and proved his point by gleanings from old Journals. Mr. W. Harper Watson spoke on several matters affecting the districts around and pointed out how each could be remedied. He brought up the matter of the road extension from Darley to Brown's Gap. This matter was fully discussed and the Secretary was instructed to write Hon. K. V. Abendana, M.L.C., pointing out the best way the proposed extension could be carried out to facilitate a larger body of taxpayers. A unanimous and hearty vote of thanks was accorded Mr. Watson for his kindness in attending to give the Branch a "kick-off." He replied suitably. A very enjoyable meeting was terminated with the singing of the National Anthem.

St. Margaret's Bay P.O. M. L. J. WILLIAMS,
Secretary.

ST. MARY: Marlborough.—Meeting held 24h April. In attendance were: Mr. Z. Ffrench, President; 8 other members, one visitor and the Secretary. Meeting opened with prayer. Minutes of last meeting were read and adopted and matters arising therefrom discussed. The Branch decided to subscribe to a Presentation Fund for Mr. J. A. Banks, in response to a request from the St. Mary Branches Associated.. Authorised Persons reported all correct. Their badges and handcuffs were presented in good order. It was decided to invite the Hon. Member for the parish to a meeting of the Branch. Roll Call was taken, other matters were discussed. Annual meeting was fixed for 22nd May. The Chairman made his closing remarks and the meeting ended with the National Anthem.

Pear Tree Grove P.O. D. AUG. FORD,
Secretary.

Albion Mtn.—Annual meeting held 12th April. Present: 9 members and one visitor. Minutes of the last meeting were read and confirmed and matters arising therefrom discussed. All the officers were unanimously re-elected with Mr. W. Gray added to serve on the Committee. The President, on behalf of the Officers, thanked the members for appreciation and confidence. Letters were read re (a) Birth Office for registration of Births and Deaths in the district (b) Giant Plantain suckers (c) Donation and address to be presented to Mr. Banks (retired Instructor) at the next Half-Yearly Meeting of the Parish Association of Branches. It was decided that a letter be sent to the Parochial Board asking them to replace the roof over the Thompson's Spring and to attend to its sanitation. Detective Irvine gave a few words of advice to Authorised Persons. This was highly appreciated by all and he was heartily thanked. One Authorised Person present reported all correct. The Roll was called and the meeting adjourned.

Port Maria P.O. J. H. PETRIE,
Secretary.

Central St. Mary.—Annual meeting held 5.4.34. with the 1st Vice-President in the chair, with 2nd Vice-President, the Treasurer many others and the Secretary. The usual preliminaries were carried through and the minutes of the previous meeting were read and confirmed. Under correspondence, the Secretary read letter from the Parent Society re Authorized Person McGibbon. All the old officers were unanimously re-elected to serve for the ensuing year. The meeting closed with the singing of the National Anthem.

Richmond P.O. C. C. LEE,
Secretary.

Oxford.—Meeting held 17th April. Present: The President, Secretary and eight other members including one new member. After prayer, the minutes of the last meeting were read and confirmed. Correspondence was dealt with. It was unanimously agreed to give not less than a sixpence each for the Presentation Fund to Mr. J. A. Banks. One Authorised Person reported all correct. It was agreed to defer all important matters until the new Instructor comes. The meeting was brought to a close by the singing of the National Anthem.

Free Hill P.O. (MRS.) R. A. THOMAS,
Secretary.

Other Reports Received.

Branch.	Date of Meeting.	Attendance.	Business.	Secretary.
St. Mary.				
Baxter's Mtn.	17.4.34		Annual Meeting. Addresses by Messrs. Strachan and Dryden. Panama Disease and road matters.	R. J. Lawson-Ricketts.
St. Elizabeth.				
Brompton ..	29.3.34		Water Supply. Roads. Presentation of address and purse to Instructor G. R. Graham. Address by Instructor Graham.	G. W. S. Wynter.
St. Ann.				
Brittonville	18.4.34		Annual Meeting. Rat extermination. Potato bugs. Election of Officers. Coconut disease. Social.	A. Thomas.
St. Andrew.				
Content Gap.	22.4.34	12	Annual Meeting. Election of Officers. 6 new members enrolled	F. A. Wilson.
Rock Hall ..	23.4.34	17	Annual Meeting. Election of Officers. Election of delegates to St. A. B. A. Concert. Address by Instructor G. Hanson.	Mrs. B. Heslope.
Westmoreland.				
Darliston .	20.4.34	..	Annual Meeting. Report re Pound. Mahoe bark. Report on goat given by Dr. Hudson. Election of Officers. Address by Instructor. Local Show.	A. A. McDonald.
St. Catherine.				
Content ..	25.4.34	..	Eradication of Yaws. Curing of Coffee. Juvenile Branch. Address by Instructor Martin.	G. Planter.
Troja .	..	.	Annual Meeting. Election of Officers. Address by V. P. DaCosta.	A. E. Christie.
Hampsire ..	27.3.34	..	Resolution re appointment of J. P. Water Supply.	E. A. L. Rowe
Hanover.				
Hopewell ..	6.4.34	21	Annual Meeting. Addresses by Major Pease and Instructor Hastings. Election of Officers.	C. S. Morrison.
St. James.				
Maldon ..	6.4.34	21	Election of Officers. Panama Disease. Telephone for Point P.O.	A. A. Morrison.
Clarendon.				
Mt. Providence	10.4.34	..	Annual Meeting. Addresses by Messrs. McWhinnie and Dunkley.	G. S. Neita.
Manchester.				
Old England	24.4.34	.	Annual Meeting. Election of Officers. Exhibition of remarkable production of Irish potatoes	C. P. Watson.
Snowdon ..	10.4.34	14	Annual Meeting. Juvenile Branch.	
Trelawny.				
Ulster Spring ..	16.4.34	..	Citrus and Banana Industries. Address by Instructor Kelly.	I. C. Williams.
Warsop ..	18.4.34		Annual Meeting. Election of Officers Address by Instructor Kelly.	U. K. Walters.
Portland.				
Skibo ..	11.4.34	12 and visitors.	Annual Meeting. Election of Officers. Annual Report.	R. C. Watson.

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OF THE

Jamaica Agricultural Society.

The more people do the more they can do; he who does nothing renders himself incapable of doing anything; while we are executing one work we are preparing ourselves for undertaking another.

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BOARD OF MANAGEMENT.

The regular monthly meeting of the Board of Management of the Jamaica Agricultural Society was held at the office of the Society, 11 North Parade, Kingston, on Wednesday the 2nd May, 1934, at 11.30 a.m. There were present: Hon. T. J. Cawley, First Vice-President, presiding, Rev. W. J. Thompson, Second Vice-President, Hon. A. C. Barnes, Director of Agriculture (*ex-officio*), Messrs. Sidney Barton, H. E. Lewis, T. P. V. McDaniel, U. Theo. McKay, D. D. Phillips, W. Harper Watson, W. H. W. Westmorland, and T. R. Williams; Major G. B. Pease; Mr. P. St. L. Bacquie, Supervisor of Instructors, and the Secretary, Glaister Baxter.

Confirmation of Minutes of the previous Meeting.

The minutes of the previous meeting having been circulated were taken as read.

The words "as amended" were added on page one, line 18 and the sequence of the paragraphs on page 4 re Expansion of Cane Farming were altered.

Mr. McDaniel moved, seconded by Mr. Lewis, that the minutes as amended be confirmed.

This was carried.

Rev. Mr. Thompson enquired as to whether the Instructors had taken up their new appointments.

The Secretary advised that the new Agricultural Instructors had been granted a few days' leave to enable them to effect their transfers, and that Instructor G. R. Graham had already taken up duties in Portland and Instructor Wray in Northern St. Elizabeth.

Mr. Thompson enquired where Instructors Graham and Jones would be living.

The Secretary informed him that Instructor Graham would be living at Norwich, near Port Antonio and Instructor Jones in Port Antonio.

Mr. Thompson said that this was undesirable.

The Secretary stated that he had had a talk with Mr. Thompson on this matter, but before that Instructor Graham had already arranged for housing at Norwich, but as he considered it desirable that the Senior Instructor should work in the western portion of Portland and that the Assistant Instructor should work in Eastern Portland and the Fellowship-Millbank area he instructed Mr. Jones to take up residence in Port Antonio. Later Mr. Graham might find suitable quarters nearer to Buff Bay.

Matters arising out of the previous Minutes.

(a) *Statement by Secretary.*—The following statement was presented by the Secretary:—

To the Board of Management:
Gentlemen:—

The necessary circular advising Instructors of loans being issued for 8 months only and also that they should not expect further loans in future has been issued.

Miss E. McKay has been employed temporarily as Junior typist.

Other routine correspondence resulting from the Minutes have been carried through.

Yours faithfully,
(Sgd.) GLAISTER BAXTER,
Secretary.

The Secretary said that arising out of this statement he had a letter from Instructor Thompson, requesting that the first instalment on his loan be postponed until May as he had received the loan late in April.

On the motion of Mr. McKay, seconded by Mr. Phillips it was agreed that Instructor Thompson should be allowed eight months from the date of issue of the loan to complete payment.

(b) *Letter from Mrs. Barclay re Compassionate Allowance.*—Letter from Mrs. Barclay asking the Board's permission to withdraw a former letter forwarded by her, and accepting with thanks the grant of £50 voted by the Board at a previous meeting as a compassionate allowance, was submitted, and noted.

(c) *Comfort Hall Branch—Further letter.*—Letter from the Comfort Hall Branch informing the Board of the difficulty they had with regard to their regular meeting place (the school room), was submitted.

Mr. Phillips was asked to interview the Rev. Walter E. Evelyn, Manager of the School, with a view to having the matter adjusted.

(a) *Letter from Secy. Seaforth Branch re nomination of Ambrose Cornwall as an Authorised Person.*—Letter from Mr. C. L. D. Morgan, Secretary of the Seaforth Branch, approving of the nomination by Mr. J. L. Hopkins (Direct Member) of Ambrose Cornwall to act as an Authorised Person for Blue Mountain Estate, and stating that A. Cornwall was not a member of the Branch was submitted.

The Secretary was instructed to request Mr. Hopkins to invite Mr. Cornwall to become a member of the Seaforth Branch when the nomination would be forwarded to the Inspector General of Police.

Statement of Accounts.

(a) *Statement for March.*—The Secretary said this statement appeared in the circulated minutes.

(b) *Statement for April.*—Statement of Accounts for April was submitted as follows:—

STATEMENT OF ACCOUNTS FOR THE MONTH OF APRIL, 1934.

Receipts.	Estimates. £ s. d.	Total. £ s. d.
To Subscriptions	175 0 0	14 10 3
Affiliation and Journal Fees	175 0 0	7 9 6
Advertisments in Journal	200 0 0	6 2 0
Bank Interest and Sundries ..	10 0 0	2 5 3
Miscellaneous	10 0 0	..
Bee Industry Sales	30 0 0	10 0 5
Sales Dept. Profits	400 0 0	..
Government Grant	9,500 0 0	..
Beekeeping Industry Govt. Grant	500 0 0	..
Appropriation from Sales Dept. Surplus	516 15 0	..
	£11,516 15 0	£40 7 5

Receipts.	Estimates.			Total. £	s.	d.
Balance from 31st March, 1934				1,877	4	8
Nethersole Presentation Fund	..			0	2	0
Prize Holding Competitions Entrance Fees	..			1	7	0
Refunds of Advances	..			54	5	0
Seeds Trading a/c	..			528	11	0
				£2,501	17	1
Less Expenditure—per contra ..	..			1,993	13	11
Balance	..			£508	3	2
Cash in hand	46	3	2			
Cash at Royal Bank of Canada Current A/c	202	0	0			
Cash at Royal Bank of Canada Deposit A/c	550	0	0			
	798	3	2			
Less Overdraft on Current A/c. Barclay's Bank	290	0	0	508	3	2

Expenditure.	Estimates. £	s.	d.	Total. £	s.	d.
By Personal Emoluments:						
Secretary and Office Staff ..	2,014	5	0	144	18	4
Instructors and Supervisor ..	7,482	10	0	795	14	2
Instructors' Course at Hope .	125	0	0	.		
Instructors' Contingencies ..	100	0	0	0	5	0
Secretary's Office and Special travelling	100	0	0	8	4	6
Printing and Stationery	100	0	0	0	4	6
Printing and issuing Journals and Reports	750	0	0	1	13	11
Rent and Rates ..	58	0	0	4	0	0
Rent of Telephones . .	27	0	0	2	6	8
Postages and Telegrams .	10	0	0	1	15	4
Office Fruniture, Repairs .	15	0	0			
Incidentals	50	0	0	3	4	3
Auditors' Fees . ..	25	0	0	..		
Books for Library	10	0	0			
Experiments and Livestock Subsidies	100	0	0	0	1	9
Show Equipment: Repairs and Maintenance	10	0	0			
	£10,976	15	0	£962	8	5
Beekeeping Industry	500	0	0	57	18	0
New Office Equipment	40	0	0	.		
	£11,516	15	0			
Gratuity	.			8	0	0
Advances to Instrctors	..			435	0	0
Nethersole Presentation Fund ..	..			9	0	0
Prize Holding's Competitions ..	.. .			5	0	0
Seeds Trading Account . ..	.. .			516	7	6
				£1,993	13	11

(Sgd.) GLAISTER BAXTER,
Secretary and Treasurer.

(Sgd.) DONALD McDONALD,
Accountant.

Report of Special Committee appointed to plan Instructoral Work.

The report of this Special Committee was presented as follows, and a copy having been sent to each member of the Board was taker as read

Report of the Committee of the Board of Management appointed to make recommendations in regard to the planning of the work of the Instructoral Staff for the ensuing year.

A Committee consisting of the following Members of the Board of Management was appointed for the purpose of submitting recommendations for the planning of work of Instructors and of considering certain matters referred to the Committee by the Board: Hon. Mr. A. C. Barnes, Director of Agriculture (Chairman) Hon. Mr. T. J. Cawley; Messrs. T. P. V. McDaniel, T. R. Williams; Supervisor of Instructors, Mr. P. St. L. Bacquie, and the Secretary, Glaister Baxter.

The Committee met on two occasions and on the conclusion of its second meeting was ready to report. The following report has been drafted by the Chairman and the Secretary of the Society and approved by the full Committee:—

Report.

General—

The Committee submits a number of general considerations which should be taken into account in planning the work of the Instructoral staff.

It would appear that under existing circumstances Instructors are required to be available at many points distant from one another in their districts in the course of a short time, with the result that they have to do a considerable amount of travelling and are, therefore, unable to concentrate satisfactorily upon work requiring attention in a particular area of their District. The Committee feels, therefore, that each Instructoral District should be divided into a suitable number of zones usually four—and that Branches in each zone should be invited to arrange their meetings during one particular week of the month in order that the Instructor might be able to devote the whole of his attention during that week to work within the zone and to attend some, at any rate of the Branch Meetings. A list of the Branch Meetings to be attended by the Instructor should be submitted to the Secretary or the Supervisor for approval.

The Committee agrees that regular Branch Meetings are desirable to maintain and increase both membership of the Society and the interest taken by planters in country districts in the work and objects of the Society.

This aspect of the Instructors' work should not, however, be permitted unduly to interfere with his more important duties in the field, which should take the form of field talks and instruction and demonstration

Members of the Board of Management and others interested in the development of of Agriculture should be invited to attend Branch Meetings in order to relieve Instructors from regular attendance at every meeting, and to encourage and assist the Branches.

The Committee considers that, while Instructors should be encouraged to deliver lectures at Branch Meetings, their subjects should be chosen in consultation with the Supervisor and the Secretary of the Society, and should embrace matters of wider and more general importance rather than particular points such as methods of cultivation etc., of certain crops, which can much better be dealt with in the field and on members holdings. Subjects such as the various aspects of co-operation in relation to labour, purchasing of equipment and manures, marketing and credit; the general agricultural position of Jamaica in relation to the production of particular crops and the production of these crops in other countries; the conservation of soil fertility, are among those appropriate for lectures to Branch Societies.

The Committee recommends that in order to assist the Instructoral staff in their various duties, facilities should be extended for the loan of books and periodicals both from the Library of the Department of Science and Agriculture and from the Library of the Jamaica Agricultural Society. The former could with advantage be made more accessible to the Society's Staff.

The Committee considered that the annual courses at Hope should be followed by oral and practical tests, and that endeavours should be made to arrange for meetings of groups of Instructors in country districts when lectures and field demonstrations could be given by members of the Department of Science and Agriculture. Members of the Board of Management could, where possible, be invited to attend such meetings, and arrangements might be made for public demonstrations to be given.

In regard to demonstrations on members' holdings, the Committee suggests that steps should be taken to ascertain which persons desire to have such demonstrations and that, with their consent, arrangements should then be made by the Instructor in order to secure as good an attendance as possible from the districts adjacent. Such arrangements should be made strictly in accordance with a programme so designed as to enable the Instructor to concentrate upon a given area in his district before moving to another one.

In order to make Branch Meetings more useful from the agricultural point of view those attending them, the Committee suggests that Branch Secretaries should be ...d to ascertain what questions their members wish to ask the Instructor, furnishing

a list of such questions to the Instructor some time before the meeting, in order to enable him to prepare replies. In this way questions asked at one meeting could be answered in detail at the next meeting, and interest thus maintained.

The Committee recognizes that if these proposals are accepted the Instructors may have to sleep away from home occasionally. They should ascertain which members in the particular districts visited would be prepared to offer them accommodation and make private arrangements with such members.

The Committee feels that the closer contact maintained with Branch members in this way will be of real benefit to the Society in particular and to agriculture as a whole, and that the Instructors themselves will find it cheaper to arrange to sleep away from home rather than to travel many miles by car.

Special work for 1934-35—

The Committee gave consideration to the particular work which should be undertaken by the Instructoral staff during the coming year. It is recommended that a feature of the Society's year should be a "citrus drive" conducted in assocation with the Department of Science and Agriculture in accordance with plans to be devised by the Director of Agriculture. It is realised that this scheme will not be applicable to all districts but it is felt, nevertheless, that it should be in the forefront of the Society's activities in the the near future, having regard to the Government Scheme for the development of the Citrus Industry, and the fact that budded plants of standard varieties will shortly be available for distribution.

In this connection the Committee considers that the Instructoral staff should be supplied with a definite programme of the work required in relation to the needs of particular districts and that every assistance should be rendered by the Society's staff in carrying through the approved programme. The consdideration already outlined in connection with the concentration of effort should be carefully observed in this regard.

In connection with citrus, the Committee gave consideration to the proposal put forward by Mr. McDaniel for a top working campaign for existing citrus trees. It was decided to recommend that the Society give every encouragement to the top working of citrus trees with approved varieties in cases where trees are healthy, well grown and so situated as to be capable of being easily looked after subsequently. The Committee recommends that the Board of Management authorise expenditure up to a sum of £50 for providing free budwood of approved varieties up to the extent of 25 buds for each farmer whose trees are approved for top working, buds in excess of 25 to be paid for at cost.

It was considered important that budwood should be obtained from approved nurseries and the Committee was informed that supplies of standard varieties would shortly be available from the nurseries established by the Government.

Instructors would be required to keep records of all budding done in order that the success of their work might be ascertained.

The Committee endorsed the proposal of the Director of Agriculture for the establishment of small citrus demonstration orchards in different localities, and agreed that the Instructors should co-operate in their establishment and maintenance.

The Society through its Instructoral staff should encourage the establishment of suitable permanent crops in districts where planters are now solely or almost entirely dependent on bananas and annual crops. It is suggested that small farmers should establish not less than 20% of their acreage in such permanent crops and larger farmers not less than 10%. Such crops should be carefully selected in relation to the soil and other conditions of the different areas and should include citrus, coffee, coconuts and economic timbers.

The Committee felt that steps should be taken to publish articles in the Society's Journal in regard to the methods of planting, cutivating and marketing of the various crops produced in the Island, and on subjects concerning the stock industries in relation to the small farmer. These articles should be compiled in such a way as to form at a later date a handbook on agriculture for Jamaica.

Wherever conditions are suitable, encouragement should be given to the formation of Juvenile Branches, working in association with the Department of Education and the Elementary Schools.

In this connection the Committee had in mind the very useful work done by Instructor Martin in the Marlie Hill area and recommends that similar endeavours be made in other districts.

Instructors should render all assistance possible in connection with an afforestation programme in the districts of Christiana, Upper Clarendon, Upper St. Andrew and parts of St. Elizabeth. Where tree planting is to be conducted planters should be encouraged to prepare the land before the plants are received and to take only as many plants as they can properly care for afterwards. Demonstrations should be arranged with the object of instructing planters in the correct methods of handling and planting young seedlings.

Matters referred from Board of Management—

The Committee gave consideration to a number of matters referred to it by the Board of Management, in regard to which it reports as follows:—

Floating Branches.—The Committee agreed that it was not advisable to encourage the establishment of Floating Branches as outlined by Instructor Coke, but that Sub-Branches on the lines that already existed should be fostered and extended.

The Encouragement of Vegetable Growing by Smallholders:—The Committee considered a letter from the Director of Agriculture requesting the Society's views on the institution of a Small-holders Prize Competition in the growing of vegetables.

It was considered that it would be more advantageous to establish a marketing organization for minor fruits and vegetables. It was further considered desirable that the Department of Science and Agriculture should organise instruction in vegetable culture and export marketing in co-operation with the Society, using the services of Mr. Miller, the Junior Government Instructor for the purpose.

Instructor Shirley's Proposal for the Establishment of a Coffee Nursery in Clarendon.—The Committee considered that as the quality of Blue Mountain Coffee was essentially due to climatic and soil conditions, it was unnecessary to establish a coffee nursery from Blue Mountain Coffee Seed, as good selected seed of the Arabic variety would be entirely satisfactory.

Hon. G. W. Muirhead's offer of land for Vegetable Growing in Mid-Clarendon.—Correspondence with reference to the Hon. G. W. Muirhead's offer of land for a vegetable growing demonstration plot in Mid-Clarendon was considered.

It was decided to recommend that the Secretary write thanking him and advising that at present the Society was not in a position to take advantage of the offer, but they would be glad to have the offer held open in case it was found possible to take advantage of it later on.

Secretary's Report on Yallahs Area.—The Committee considered this report and recommends that the propagation of Bombay Mango at Llandewey and the top working of mango trees in the surrounding area be continued and that every assistance be given to the establishment of suitable cultivations in the Yallahs Plain.

Handling of Citrus Fruit.—The Committee considered the letter from the Frist Vice-President, and decided to recommend that the Director of Agriculture be requested to include in his courses at Hope a special feature of citrus instruction, including harvesting and handling of fruit.

Employment and Assignment of Three Agricultural Headmen:—It was decided to recommend that the Secretary, in co-operation with the Supervisor and Instructors, should find suitable men and then report to the Committee. It was tenatively agreed that one Headman should be placed with Instructor McLaren, another with Instructor Shirley, the third to be placed in Supervisor Bacquie's area, the exact location to be decided on later, on the recommendation of the Supervisor.

Special Crops for Mid-Clarendon.—The Committee considered reports from Supervisors Carrington and Bacquie and Instructor Shirley and decided to incorporate such parts of them as seemed likely to prove useful in their drafts scheme for the area in question.

Travelling of Instructors:—The Committee decided that in the interest of the work of the Society and their own profit, the Instructors should be encouraged to use riding animals in preference to motor cars where their work can be facilitated thereby.

Consideration of Supervision for the Eastern Districts.—The Committee decided to recommend that in view of the proposed arrangements for providing assistance for the Secretary in the Office, he should undertake supervisory duties in the Eastern districts for a period of 6 months, after which the position would be reviewed. Should circumstances arise in the meantime which render the continuance of this arrangemeent inadvisable, the matter would be reconsidered.

Details of work programme.—

Apart from afforestation, the Committee is not yet in a position to recommend particular areas in which the work outlined should be first conducted, but after consideration of the recommendations of the Society's officers in regard to the zoning of districts will, if authorised, submit detailed proposals.

The Committee, however, has in mind the following operations in the districts specified below:

A. P. HANSON—ST. ANDREW:

Fall and Winter Work—Vegetables and Tobacco.
Balance of Year—Citrus, coffee and potatoes.

U. A. MCLAREN—ST. THOMAS:

Fall and Winter—Yallahs development project.
Llandewey Bombay Mango plot and extension Bombay mangoes, Llandewey, Easington and Yallahs areas.
Balance Year—Coffee, citrus, bananas Eastern St. Thomas.

G. R. GRAHAM AND ASSISTANT—PORTLAND:

Citrus.
Cavendish bananas and pig rearing on Panama Disease damaged areas.

L. A. M. B. COKE AND ASSISTANT—ST. MARY:
Citrus and Coffee.
Bananas; timed pruning and replanting.
Coconut sanitation.
O. P. MARTIN AND ASSISTANT—ST. CATHERINE:
Citrus, Coffee and Cane.
W. L. SHIRLEY—CLARENDON:
Spring and Winter—Vegetables and Tobacco.
Other part of the year—Canes, Citrus, Coffee.
Mid-Clarendon—Bombay mangoes and cashews. Inter crops
H. W. LYNCH AND ASSISTANT—ST. ELIZABETH:
Re-afforesting.
Develop Bombay mango propagating plot at Fullerswood Park.
Extend Bombay mango budding work Lower St. Elizabeth Pedro Plains Mountainside and west to Lacovia.
Cashew nuts—Planting and care, and nurseries.
Study and search for export types of sweet potatoes.
Fertilizing demonstration on corn.
Livestock—Dairy Cattle on account Hope Farm bull in this area.
Better *utilization of rainfall by contour trenches on limited areas.*
G. W. WRAY—WESTERN ST. ELIZABETH:
Intensive drive on citrus and coffee Newmarket area.
J. A. GRAHAM—WESTMORELAND:
Rice seed selection: Improving Yield (Seasonal).
Intensive drive on citrus and coffee Upper districts.
Small cane farming.
C. C. HASTINGS—HANOVER:
Timed pruning of bananas replanting.
Fertilizing demonstration on yams.
Minor way: Citrus and coffee.
Coconut sanitation.
W. D. MARR—ST. JAMES:
Timed pruning of bananas and replanting.
Citrus.
Coffee—extension and better curing methods.
Coconut sanitation
F. W KELLY—UPPER TRELAWNY:
Timed pruning and trenching of bananas, and replanting.
Coffee extension and better curing methods.
Re-afforestation.
C. M. A. ROBOTHAM—WESTERN ST. ANN AND LOWER TRELAWNY:
Improvement of corn.
Citrus and Coffee.
Irish potatoes.
C. V. ATKINSON—EASTERN ST. ANN:
Citrus and Coffee and Irish potatoes.
Push corn.
Coconut sanitation.
M. N. THOMPSON—N. MANCHESTER, CHRISTIANA AND FRANKFIELD AREAS:
Banana—Timed purning, trenching.
Irish Potatoes—Fertilization.
Ginger—Manuring trials.
Afforestation.
Coffee.
Cane varieties—Frankfield area.
H. A. DARBY—MANCHESTER SOUTH AND CENTRAL:
Citrus.
Bombay, mangoes; Victoria Town and Pratville areas.
Coffee: care and pruning.

The Committee recommends that the Board authorise them to go into the matter of the sub-division of the district in accordance with the zoning scheme referred to, and further, to recommend such zones *in which they consider work under this scheme should* be first started.

(Sgd.) A. C. BARNES, (Clarirman).
T. J. CAWLEY
T. P. V. MCDANIEL
T. R. WILLIAMS
Members of the Committee.
GLAISTER BAXTER,
Secretary of the Committee.

The Hon. Director of Agriculture, Chairman of the Committee in moving the adoption of the report said that members of the Board after perusal of the report doubtless realised that there was still further work to be done. It was however necessary first that discussion on the recommendations submitted in the report should take place and if these were approved, with the permission of the Board the Committee would carry on. He assured the Board that the members of the Committee had devoted much time and thought both during meetings and outside of meetings to the various matters considered. He expressed great appreciation of the co-operation of members of the Committee as also of the Secretary and clerical staff.

The Rev. Mr. Thompson said he had much pleasure in seconding the adoption of the report and congratulated the Committee on the the result of their efforts.

Mr. McKay supported the remarks of Mr. Thompson and said that in connection with the supervision of the work of the Instructors he would ask that the Secretary evolve a scheme whereby the actual work done could be checked rather than the keeping of appointments that appeared on the proposed itineraries. He also said that in connection with the Hon. G. W. Muirhead's offer of land for the cultivation of vegetables in Clarendon he would like it made quite clear that the Board wished the offer to remain open so that they could take advantage of it as soon as they found it practicable.

The Director of Agriculture in closing the discussion said that only the preliminary work had been done which would prepare the ground for real advance. There were a few definite matters which the Committee thought should be in the forefront. The adoption of the report would make it immediately possible for these to be proceeded with. In some matters, e.g. zoning, the Instructors would be asked to submit their views regarding their districts to enable the Committee to plan further improvements.

The report accepted as an interim report, was unanimously adopted and the Committee authorised to carry on.

Office.

(a) *Secretary's Report on travelling for April.*—The Secretary presented his report on travelling for the month for the information of the Board.

This was noted.

Instructors.

(a) *Report on April meeting of Committee.*—The following report was presented and taken as read:—

To the Board of Management:

Gentlemen:

Your Instructors Committee sat on Wednesday 4th April, 1934, and recomend as under:

A request from Instructor Buckley for a refund of his travelling expenses from Bath to Fellowship and Fellowship to Bath about two years ago was considered and the Committee decided to recommend that it be not entertained.

A letter from Instructor Wray, complaining of the inadequacy of the amount of £13 10s. authorised for transfer expenses, was considered. The Committee decided that the action of the First Vice-President, who was deputed to deal with this matter, be adopted.

Application from Bickersteth Branch, St. James, is recommended for approval.

The more urgent matters dealt with at this meeting were, by suspension of the standing orders of the Board on the same day reported and dealt with.

(Sgd.) GLAISTER BAXTER,
Secretary of Committee.

Mr. Thompson said the report should be read.

Mr. McKay moved the adoption of the report and Mr. Phillips seconded the motion.

This was carried, Mr. Thompson dissenting.

Mr. McKay moved the suspension of the standing orders to enable the Board to deal with certain matters of urgency considered by the Instructors Committee that morning.

This was seconded by the Chairman and carried.

The following report was then submitted:—

To the Board of Management:

Gentlemen:

Your Instructors Committee sat this morning and beg to recommenced the following for your immediate approval:—

(a) That leave granted to Instructors be confirmed as follows:—Instructor Coke, March 8th and 9th. Instructor Shirley April 23rd (sick), April 27th and 30th: Instructor Hanson, April 26th.

(b) That one month's leave be granted to Instructor J. A. Graham as from June 1st.

(c) That affiliation be approved of for the following Branches:—

(i) Pleasant Valley (Clarendon).

(ii) Lucky Valley (St. Catherine).

(d) That Instructor G. R. Graham be paid £12 instead of £10 as originally estimated for removal expenses.

It was moved by Mr. McKay, seconded by Mr. McDaniel, that the report be adopted.

This was carried.

Communications.

(a) *Letter from C.S.O. re Provident Scheme.*—The following letter from the C.S.O. was read:—

No. 2992/32. 14th April, 1934.

Sir,

With reference to your letter No. 109 dated the 16th March, 1934, forwarding the report of the Special Committee appointed by the Board of Management of your Society to formulate a Provident Scheme for the benefit of the male employees of the Society, I am directed to point out as follows with regard to the proposed Pension Scheme:—

(i) The retiring allowance proposed, bears no relation whatever to the length of service of the officer concerned or his pay at the date of his retirement. All officers, whether of long service or short, whether of large salary or small, will receive the same allowance on retirement.

(ii) Apparently all officers must retire at the age of 60.

(iii) It is not clear what is to happen in the event of an officer being forced (e.g., by ill-health) to retire before he reached the age of 60.

(iv) It is not clear what is to happen if an officer is dismissed or if his services are dispensed with for any reason (e.g., reduction of the Government grant necessitating reduction of staff.)

(v) The scheme is more than a pension scheme, it provides for payment of a lump sum in the event of death before the age of 60, part of which will go to the heirs of the deceased officer. It also provides that in the event of the death of an officer after the age of 60 and before the age of 70, payment of £10 per month (the amount of the proposed pension) shall he continued to the heirs of such officer until a period of 10 years from the date of his retirement has been completed.

2. The Officer Administering the Government would be glad to receive the remarks of your Society on the points set out above.

(Sgd.) B. H. EASTER,
Acting Colonial Secretary.

The Board directed that the letter be submitted to the Special Committee which considered this matter previously, and that the Committee be requested to wait on the Officer Administering the Government with a view of forwarding the matter.

(b) *Invitation from St. Elizabeth Branches Associated to Annual Meeting,* 26.5.34, was presented and noted.

At this stage the Hon. Director of Agriculture asked to be excused.

Diseases of Plants and Animals: Insect Pests.

(a) *Panama Disease of Bananas: Report for March.*—The report for March on the incidence of Panama Disease, copy of which had been sent to each member of the Board, was placed before the Board.

Mr. McKay asked that the matter be deferred until the Director of Agriculture returned as he wanted to get some information on the subject.

(b) *Letter from C.S.O. covering Order re Cattle Contagious Diseases Law* 1932.—Letter No. 1515/34 of date 20th April, 1934, covering copy of an order altering the Regulations made by the Governor in Privy Council prescribing the countries from and the conditions upon which, horses intended for racing may be imported into Jamaica, was presented.

This was noted and the Secretary directed to publish the information in the Journal.

(c) *Coconut Disease in East St. Ann—Letter from Instructor Atkinson.*—Letter was submitted from Instructor Atkinson calling the attention of the Board to the seriousness of the "Bitten Leaf" disease of coconuts, which was rapidly spreading in his district and seriously affecting the industry in that section. He asked that something be immediately done to remedy the situation.

Mr. Westmorland said in his section coconuts had been similarly affected but the treatment with lime and blue-stone recommended by the Microbiologist had proved effective in the majority of cases.

The matter was deferred, pending the return of the Director of Agriculture to the meeting.

Industries.

(a) *Beekeeping: Instructor's Report for March.*—The Secretary placed on the table report for March from the Instructor in Beekeeping and stated that the report was in circulation to the Bee Industry Committee.

(b) *Citrus: Letter from C.S.O. covering Order re Export of Fruits*—Letter from the C.S.O. No. 1437/34 of date 13th April, 1934, covering an Order revoking former Regulations relating to the buying, selling and exporting of citrus fruit and making Regulations in substitution therefor, was read, and the Regulations placed on the table.

Mr. Phillips said that the Regulations had been passed without the Board of Management having had the opportunity of considering the draft regulations as was formerly done. Certain of the Regulations were considered unworkable and would penalise the small men. He suggested that a Committee of the Board should meet the Advisory Board and discuss certain points with them.

Mr. McDaniel also pointed out that he had neither seen the draft Regulations nor had the opportunity of discussing them and he did not think that the new Regulations would prove easily workable.

Mr. McKay suggested that the Branches be informed of the new Regulations.

Mr. Lewis endorsed the remarks of Mr. McDaniel and added that he knew of dealers who would be adversely affected because they had had no knowledge of the new Regulations before they were actually made Law.

The Director of Agriculture resumed his seat.

He stated that the draft Regulations had been referred to the Jamaica Citrus Producers' Association for their comments before they were made Law.

After further discussion it was decided that the Regulations should be given a fair trial and the Secretary stated that they would appear in the April number of the Journal.

As the Director of Agriculture was now present, Mr. McKay with the permission of the Chairman asked regarding the report on Panama Disease, whether the figures representing the total number of holdings and fields infected was meant to show a total of trees affected since the inception of the disease.

The Director of Agriculture said that the figures represented the total since the disease had been first treated in 1912, and represented the number with which the Department of Agriculture had directly dealt. After a field was abandoned no further record was made.

Mr. McKay said it was regrettable that the Department could not give a figure more approximating correctness.

The Director of Agriculture said that without some better system than at present existed of getting agricultural statistics and returns the Department could not furnish more correct information.

Re Coconut Disease.—Asked to advise the Board as to what was being done regarding this trouble, the Director of Agriculture said that the Department of Agriculture was giving special attention to this matter at the present time and the disease was under very close examination, though no definite pronouncement could yet be made. Arrangements were being made for three of the Scientific Officers to make a joint investigation into the trouble with the object of ascertaining the cause and possibly the cure, as soon as possible.

Pimento Disease in Manchester.—Mr. Lewis handed specimens of diseased pimento plants to the Director of Agriculture and stated that within the last month a large number of large and small pimento trees had been affected by a disease which had not been before encountered. It was causing serious alarm in Manchester where the output for the present season was being very severely depreciated.

Mr. Phillips bore out Mr. Lewis' statement.

The Director promised to have the matter immediately enquired into.

Industries. (c) Live Stock: Application from Stony Hill Branch for service of Montgomery-Jersey Bull.—Letter from the Stony Hill Branch was submitted applying for the services of a Montgomery-Jersey bull for the Stony Hill area.

The Director of Agriculture stated that arrangements were being made for animals to stand for service at Hope at moderate rates, and the question of sire loan system somewhat on the lines practised in other countries was also under consideration.

The Secretary was instructed to reply to the Branch accordingly.

Shows.

(a) *Application for Show Equipment for Flower Show at Brown's Town.*—Letter from Mr. G. A. Barrett, Secretary of the Show Committee, applying for the use of Marquees for a Flower and Vegetable Show to be held on the 4th June next in aid of the funds of the local branch of the Y.W.C.A. and the Boy Scouts of Western St. Ann, was considered.

The Secretary was instructed to deal with the matter.

(b) *Manchester Horticultural Show,* 24.5.34. Letter from Supervisor Bacquie, informing the Board of certain arrangements in connection with the Manchester Horticultural Show, was submitted and noted.

Competitions.

(a) *Holdings Improvement: Reports on judging in St. Catherine and Lower Trelawny.*—The Secretary presented reports on the judging of the Competitions carried through in St. Catherine and Lower Trelawny and asked the Board to authorise payment of the awards. The Board gave the necessary authority, and the Secretary was in-instructed to publish the reports.

Branches, Resolutions, etc.

(a) *Letter from Tryall Hill Branch* regarding loans from the Banana Industry Aid Board was read, and the Secretary instructed to forward same to that Board.

(b) *Resolution from Upper St. Johns Branch* asking that better postal facilities be obtained for that section, was submitted, and the Secretary was directed to forward same to the Postmaster.

(c) *Letter from Wood Park Branch* expressing appreciation of the promotion of Instructor Coke and asking that he be not removed from the district was read and noted.

New Members.

On the motion of Mr. Lewis, seconded by Mr. Phillips, the following were elected members of the Society:—

H. C. Franklin, West Bay, Grand Cayman.
Stanley V. L. Campbell, Morris Hall, Rock River.
H. R. Lewis, Heathwood, Constant Spring.
G. S. Walcott, 1a Oxford Road, Cross Roads.
John N. Johnson, Maxfield, Mink River.
W. C. Gauntlett, Rose Mount, Montego Bay.
W. R. Aquart, Nashville, Highgate.
I. S. Magnus, Oracabessa.
Ivanhoe Burke, August Town, Liguanea.
O. S. Melhado, Skibo, 13 Oxford Road, Cross Roads.
J. H. Cargill, c/o Messrs. Cargill Cargill & Dunn, 4 Duke Street, Kingston.
Gerald M. Campbell, Chadeau, St. Johns, Grenada, B.W.I.
Capt. R. G. C. Harvey, Woodstock, Darliston.

Other Business.

(a) *Message from Mr. H. H. Cousins.*—The Secretary read a message from Mr. H. H. Cousins, formerly Director of Agriculture, expressing his good wishes to his old colleagues on the Board and congratulating them on the recent progress of the Society and its work.

The Secretary was instructed to thank Mr. Cousins.

(b) *Resolution from St. George's (Guy's Hill) Branch,* dealing with the insurance of Bananas, was submitted.

The Director of Agriculture said that the Special Committee dealing with this subject had decided among other things to invite the views of the Jamaica Agricultural Society, and he was suggesting that a small Committee be appointed to make recommendations.

Messrs. McDaniel, McKay, Watson and Westmorland, along with the Secretary, were asked to serve in this capacity.

(c) *Resolution from the Aberdeen Branch,* asking that representations be made for the establishment of a Branch of the Government Savings at Aberdeen Post Office, was read.

The Secretary was instructed to forward same to the proper authorities.

(d) *Applications for Grants for Juvenile Branches.*—An application from the Secretary of the Brown's Hall Branch for 25 lbs. seed potatoes for distribution among the Juvenile Branch members was granted.

Applications from Marlie Hill and Macca Tree Branches in St. Catherine, for grants for their Juvenile Vegetable Competitions, were submitted.

The Board voted a grant of One Guinea for each Branch.

(e) *Westmoreland Branches Associated.*—A letter was read from the Westmoreland Branches Associated, inviting the First Vice-President and the Secretary to attend their Annual Meeting on the 9th June, was read.

The Secretary was authorised to attend if he found it convenient.

(f) *Letter from the Hanover Windward Branch* with regard to the nomination of Instructor Hastings for the office of Justice of the Peace, was submitted.

The Board decided that this would be undesirable and instructed the Secretary to so inform the Branch.

The meeting then adjourned to Wednesday, 6th June, at 11.30 a.m.

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EDITORIAL COMMENTS.

Organization : Support the Society.

We will be pardoned if we admit taking some pleasure in drawing our readers' attention to the editorials appearing in the "Gleaner" of June 16 and June 17, with relation to the potentialities and activities of our Society. These editorials were indeed a clarion call to the agriculturists of the country to support this organization which exists primarily for their betterment and prosperity.

In the last paragraph of the "Gleaner Editorial" of June 16th the entire question dealt with was summed up and presented in a most excellent manner and we for emphasis reproduce it below:—

"In the present age of keen competition, efficiency is a prime requisite to economic survival; the inefficient must go to the wall. Rule-of-thumb methods that sufficed our grandfathers' needs must yield place to applied science, in agriculture no less than in industrial production. By a proper understanding and application of this truth a community sets its feet in the path of progress."

The organization of our agriculturists into units whereby their collective opinions and needs may be expressed is of the greatest importance to their future, just as is the organization of various branches of the agricultural industry into units large enough to reach an efficient minimum for economic production and for economic and orderly marketing.

Our membership now around 7,000 is indeed a ridiculous percentage of the agriculturists in the country. It is true that our services are availed of by a much greater number than is reflected by our membership, but this feature only emphasizes the lack of appreciation of the importance of organization by agriculturists in general.

We gratefully thank the Editor of the "Gleaner" for the kind things said of the Society and its voluntary and salaried officers, and we take the opportunity of saying that we seek the goodwill of the public of the Colony, knowiug that without it our power for good would be depreciated to a very serious extent. We would, however, point out that in seeking these good opinions we endeavour always to do so by telling the truth, even although frequently the truth might be neither complimentary nor even pleasant, and among these unfortunately necessary unpleasant truths is the fact of this lack of support of the Society.

The benefits that the Society offers in exchange for the support of the agricultural public is the nearest thing in Jamaica to something for nothing that we can at the moment think of. The Direct Member of the Society for his subscription of five shillings per year is supplied with the monthly Journal of this Society post free to his address. In addition, our entire agricultural library which contains some excellent books are placed at his disposal on loan and also in addition every facility for the other services of the Society are offered to him. For the Branch members' subscription of one shilling and sixpence per annum, of which one shilling is retained by his own Branch and is under his control, the remaining sixpence being what is contributed to the funds of the parent body, he is also supplied with the Journal post free, and the other facilities already mentioned. In point of fact, every Branch Member of this Society is Government subsidized to the tune of two shillings per annum at least.

We feel that a lot of the lack of support has probably been due to a lack of propaganda which would bring the situation forcibly to the

notice of the agriculturists of the Colony, and it is this feeling which has caused the First Vice-President, Members of the Board of Management and the Secretary of the Society to have increased their activities within the past year in this particular type of propaganda, at the same time taking the opportunity of pointing out the future needs of agriculture in the country, its present lack of efficiency and the means whereby progress and advancement may be procured.

We are hopeful and confident that the necessary support to the Society will in the near future be obtained. Indeed, signs are not lacking that the tide in this direction has set in.

Again we must thank the "Gleaner" for the timely publicity given to the matter by their wide and influential circulation and we feel that they have discharged a patriotic duty for which they deserve praise,

Pasture Management.

There is considerable literature now being produced in the current agricultural and live stock publications on this important subject.

Grass is a crop which probably covers 75% of the world developed land and is possibly in aggregate value the most valuable crop of any that farms produce. It is remarkable that such little thought has in the past been given to its production. The probable reason is that it is nearly spontaneous in growth, and so farmers have come to very nearly disregard the grasses as a crop at all, studying instead only the vehicle through which the fodder crop is marketed, i.e., the live stock produced.

Today, however, the possibility of influencing the quality and quantity of pasture grasses by the breeding and introduction of improved varieties and also its scientific fertilization has been the subject of much study.

Progressive Dairy Countries, such as, the Continental Countries, New Zealand and Canada are devoting much study to this matter and the results of these studies form as we mentioned before an interesting portion of current dairy and live stock literature.

In Jamaica we have given hardly a thought to this very important avenue of increased production and lowered cost of production, both of which essentials, are very necessary if our Beef and Dairy Industries are to be permanently put in a prosperous condition, and it is to be remembered that to some extent also the profitable production of pigs is also dependent on.

The object of this article is to stimulate local interest and thought on a subject very important to us. Not only is it possible to increase and in some instances double the carrying capacity of pastures, but also to materially increase the feeding value of the fodders in pastures.

This improvement in the feeding value of grasses is most important as it makes for more rapid growth of young stock, earlier maturity to marketing stage, and higher milk production for dairy stock.

At one time it was considered that for the increase of the protein values in pasturage, that the clovers, alfalfa and other nitrogenous fodders should form a fair percentage of the pasturage. We in Jamaica accepted this unreservedly, and as we had no indigenous nitrogenous plants that could maintain themselves in permanent pastures we felt that our beef and milk production could never reach the standard of the Northern Countries. Today, however, it has been demonstrated commercially, that by the application of moderate amounts of nitrogenous fertilizers to the grasses and feeding these grasses or harvesting them at younger stages and at closer intervals that their food analysis

results are equal to the analysis of the customary expensive concentrated cattle feeds, used for maintaining milk production.

Much of the country can best be developed by our Live Stock Industry, and if this industry cannot profitably maintain our areas now under pasturage, these must revert to ruinate with consequently considerably lessened land values and reduced incomes of a large section of our farming population.

We feel that experiments along these lines are necessary by stock breeders, especially in view of the fact that we cannot hope for any large expansion in our beef markets; and to avoid over production and unprofitable prices for beef, it is incumbent on large stock owners to at least switch a proportion of their herds to dairy strains with a view to supplying our home consumption of butter and later condensed milk, and at the same time relieving the meat market of the large depressing surplus now existing and which is likely to be perpetuated otherwise.

We have a large market here at home for these dairy products and we are bold enough to make the unequivocal statement that it is quite possible to fill this market ourselves with profit even at the competitive prices of world's market levels. We can, however, only do this, by attaining a comparable standard of efficiency in our pasture management and Live Stock Breeding.

The contention that this country is not a dairy country can be rebutted quite successfully. It's not the country that's at fault, nor our climatic conditions, it is the standard of efficiency of the producer.

The subject of the economics of our Dairy Industry is such an important one, that it must be considered as outside the scope of this article, but we shall be reviewing this important branch of our Live Stock Industry at a very early date.

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EXTRACT FROM REPORT BY MR. F. A. STOCKDALE, C.M.G. C.B.E., AGRICULTURAL ADVISER TO THE SECRETARY OF STATE FOR THE COLONIES, ON HIS VISIT TO THE WEST INDIES, 1933.

(II) JAMAICA.

The present position of the Panama disease of bananas was discussed in some detail. There seems to be little doubt that the disease is gaining ground, and that some of the best banana lands are going out of cultivation. The past year, with its hurricanes and heavy rain storms, has accounted for a wider spread of the disease. Many of the best river alluvial lands are now infected, and it is feared that the loss of high quality lands for banana cultivations is likely to bring about a crisis in the banana industry earlier than was formerly expected. Even the most pessimistic do not expect a collapse of the industry, but they recognize that the average size of Jamaica bananas is likely to suffer with this disappearance of banana cultivation from the best lands, and that the competition against Central American fruit may become more keen. The spread of the disease in the parish of St. Mary has caused certain growers to enquire whether quarantine on a one-root basis, could not be allowed instead of on the usual nine-root basis, which has been customary in the past and which experimental data have shown to be the most sound. Such a change, if allowed, is certain to result in a spread of the disease throughout the parish, and to reduce still further the acreage of lands suitable for Gros Michel banana cultivation in the Colony. The position is undoubtedly a difficult one, and seems to indicate that the fight against the disease, is, as I pointed out in my report* of last year, a retreating action. Quarantine measures in the past have helped to delay the retreat, but experiences of the past year show that by reason of abnormal climatic conditions, the disease has gained ground, and that the retreat before the advance of the disease is gradually becoming more rapid.

It is therefore all the more necessary to examine what can be done to meet the situation which is developing with increasing rapidity. The planting of infected lands with other crops has been suggested, and effect is being given to this proposal. Additional areas are being planted in sugar-cane and the representatives of the industry are urging the need for a greater export quota, should a scheme of restriction of output of Colonial sugar be finally adopted. There is no doubt that many of the infected banana lands are suitable for sugar-cane and that those owned by estates will be so utilized where adequate factory facilities exist. How far existing factories will be able to turn out increased quantities of sugar with efficiency and at a reasonable manufacturing cost is not certain. Some improvements in factories are being made, but very marked changes will be necessary in the the majority of cases, if they are to bear comparison with the factories in other West Indian sugar-growing areas. The fact remains, however, that the incidence of Panama disease in bananas warrants very careful consideration of the suggestion that the cultivation of such lands with sugar-cane within reasonable distances of factories should not be handicapped.

A marked interest in the cultivation of citrus has also taken place

[* Report of Mr. F. A. Stockdale on his visit to the West Indies, Bermuda, British Guiana and British Honduras, 1932.—C.A.C. 128.]

during the year, and it is now recognized that if the Colony is to hold its own in the competitive markets for citrus fruit, it must depart from its previously accepted policy of growing seedling plants, and embark upon a policy of establishing new plantings of budded plants of approved standard varieties and of top-working many of the seedling cultivations. A marked change of outlook has taken place during the past year, and the Government has found it possible to support the movement for the development of citrus growing on modern lines by the establishing of nurseries for the supply of budded plants at cheap rates, and of providing, when required, a cold storage plant for experimental work on storage problems. The nurseries which have been established under this scheme were visited, and it is proposed that the Microbiologist should visit Florida personally to select pedigree bud-wood, when the stock plants in the nurseries are ready for budding. Between 40,000 and 50,000 budded plants are expected to be issued from these nurseries annually. The sour orange seedlings were established in beds under the shade of bananas and this shade provided a very effective check against citrus-scab, but this disease, by reason of the very wet season which has been experienced in Jamaica this year, was prevalent on the seedlings after they had been planted out for development for budding. Continuous attention and manuring will be required, if first-class plants are to be raised, but numbers greatly in excess of 50,000 have been put out, so that by selection this number of budded plants may eventually be assured for this year's work. The practical field work has been entrusted to Mr. Sutherland, in addition to his work in connexion with the breeding and testing of seedling banana varieties, and I would suggest that he be afforded an early opportunity of visiting Trinidad to see the banana breeding work in progress at the Imperial College of Tropical Agriculture and the citrus work of the Trinidad Department of Agriculture, with, if possible, short visits to St. Lucia and Dominica to see the Government citrus nursery work being carried on in those islands. Personal contact of this kind would be invaluable, and the added experience most useful in connexion with an important scheme of development such as the the citrus scheme now being undertaken in Jamaica. Such a visit combined with the personal selection by Mr. Smith of high class bud-wood from Florida should enable the Colony to lay the foundations of a citrus industry with high quality produce, and thereby add still further to its economic stability.

This development of sugar-cane and citrus cultivations is one of the means of combating the ravages of Panama disease in bananas but it must be recognized that the banana has been the main agricultural staple of the people of Jamaica for a great number of years, and is particularly the money crop of the small peasant proprietor. To plant certain areas with other crops will not alone meet the situation, and interest in these developments should not overshadow the need of the banana grower for a variety resistant or immune to the Panama Disease. There are many growers who do not favour the production of an immune type, and fear that Central American countries would swamp banana markets with cheap fruit should such a variety be developed. Jamaica, however, now has protected Empire markets for its fruit, and under these conditions should have no reason to fear the competition of countries outside the Empire. It should therefore support to the utmost the work of raising seedling bananas and of testing them against attacks of Panama disease, and it should make trials with other varieties known to be resistant to the disease. The possibility

of well-designed trials in several localities with the Canary type of banana were discussed with the Director of Agriculture and the Microbiologist, and the work of the Geneticist was carefully examined. Whilst the difficulties attending the shipping of the Canary type of banana are recognized, it is apparent that the Government of Jamaica would be failing in its obligations to the banana industry if it did not provide for adequate tests to be made to ascertain whether this type can, or cannot, be grown commercially under Jamaica conditions and shipped to either United Kingdom or Canadian markets. If Panama disease continues to spread and if no immune seedling with commercial qualities is secured, Jamaica growers may of necessity have to fall back on the Canary type or some of its variants, and it would be unwise to postpone a detailed test of the possibilities of this type until the position has become acute.

The cytological work of the Geneticist during the past year seems to show clearly that with one or two exceptions the Jamaica seedlings have resulted from the artificial crossings which were made by those in charge of the work, and that the best hope for the future lies in the production of large numbers of seedlings on similar lines for submission to rigorous field tests with a view to establishing their commercial values and resistance to disease. Extended trials of S. 7 and S. 19 have been provided for, but the indications are that the fruits may be too short for general acceptance by the trade. The flavour of these two seedling varieties is excellent, and it is expected that shipping tests of commerical consignments will shortly be made. Numerous back crosses are being attempted, but the past season has not been a favourable one for the production of large numbers of seeedlings. This banana breeding work is beset with a number of practical difficulties, but it is expected that the work which is shortly to be undertaken at a number of centres at varying altitudes may result in some of the difficulties being overcome.

The banana-borer question was another matter which received special consideration. This borer is widespread throughout the cultivations, and it has been suggested by Dr. Myers that it is a pest of sufficient importance to warrant an attempt at biological control. The Entomologist of the Department of Agriculture in Jamaica has recently made a special study of the prevalence of the pest and the damage which it is doing. In well-managed and well-cultivated estates where normal plant sanitary measures are practised the pest is kept under control. Occasional damage may be done to new plantings or to supplies, but the loss produced by the pest in the standing fields is negligible. Under these conditions it cannot be looked upon as a serious pest. On badly managed estates, and on some of the small peasant holdings where control measures are not practised, losses from the pest do occur. In certain cases these may be considerable, but as a general rule serious damage only results from neglect. In estate cultivations, there should be no excuse for this neglect, but amongst small holders the position is hardly the same. To effect control of the pest, wholehearted co-operation extending over considerable areas is necessary. This is difficult to secure where peasant holdings are small and somewhat scattered. Some of the more progressive realize the necessity for these control measures, but others find it difficult to apppreciate that it is their duty to the neighbours as well as to their own interest to adopt proper measures of plant sanitation. Under such conditions, biological control measures probably offer a remedy. An effective parasite for the pests is not

known, although it is agreed that one might be found in the islands south of Malaya, and possibly in New Guinea. The search for such a parasite should be entrusted to an entomologist who has worked on biological control problems in this area and is well acquainted with the prevailing conditions. In 1934, one of the entomologists attached to the Coconut Committee in Fiji who knows New Guinea should be available, and it is suggested that if preliminary enquiries from him indicate that there would be a hope of securing the desired parasite from that area, he should be entrusted with the search for it and, if it is discovered, with its ultimate introduction into Jamaica. There can be no certainty that an effective parasite will be found, but the opportunity of utilizing the services of an entomologist already in the Pacific and who possesses a knowledge of New Guinea is unlikely to occur again, and it would therefore appear desirable that it should not be missed.

The banana-borer is a cosmopolitan pest and the question was raised as to why Jamaica should by itself undertake such a project. To no Colony do bananas mean so much as to Jamaica, and the relatively small expenditure which would be incurred in this exploratory investigation would be amply justified on behalf of the industry. It is possible that Fiji, which is also developing a small banana industry, might desire to co-operate. The banana-borer occurs in the banana cultivations there to an even greater degree of intensity than it does in Jamaica, but as no time should be lost if it is thought desirable to proceed with the proposed mission, it is suggested that the preliminaries should be undertaken by and on behalf of Jamaica itself, and that any financial assistance ultimately secured from Fiji should be paid to Jamaica as a partial refund of the expenses incurred..

Jamaica banana growers during the past year have had a most unsatisfactory year. The spread of Panama disease has been considerable, vast damage has been occasioned by hurricanes and floods, and it is not expected that the total export of the year will be in excess of 10 million stems instead of the average of 22-24 millions. This shortage in banana supplies has resulted in an intense local competition for them, and is likely to bring about a serious crisis in the co-operative movement which supports the Jamaica Banana Producers Association. This Association has been compelled from lack of supplies to withdaraw some of its shipping services, and has been unable to offer as attractive prices as some of its competitors. There is little doubt that the co-operative movement is face to face with a situation which has not been uncommon in co-operative movements elsewhere, and it is only likely to be overcome if the loyalty of all members to their Association is maintained and the position is handled with prudence by the management.

The Co-operative Associations dealing with citrus fruit and coconuts are also not without their difficulties, and present conditions will impose a serious test on their managements and directorates. Further working capital is required, but this will be difficult to secure unless it is demonstrated that sound and efficient management is available to the Associations in their times of difficulties. The Coconut Association is beginning to find a demand in the island for its oil products and is now able, owing to the increase in prices in the United States of America, readily to dispose of the select coconuts supplied by its members. There is in consequence some justification for the belief that with added support from its members, it should be capable of weathering the storm. Its difficulties are however not yet over.

and careful and prudent management is still required before it can be felt that its stability will be unshakable. The local production of edible oil has not been without its value to the producers of coconuts, and the continuance of the factory's operations has the unstinted support of all desirous of the Island's welfare.

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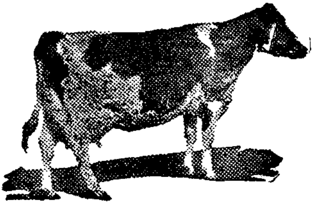

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POTATO DISEASES.

Extract from Article written by G. H. Pethybridge, B.Sc., Ph.D., Plant Pathological Laboratory, Ministry of Agriculture appearing in the Journal of the Ministry of Agriculture, 2nd May, 1934.

The temptation to dwell disproportionately on virus diseases of the potato is extremely strong, and must be resisted, and consideration must now be given to one or two other diseases concerned with the growing plant in the field and affecting the crop of tubers raised. Blight (due to *Phytophthora infestans*) is still by far the most important of all potato diseases in this country, for it destroys the tops, reduces the crop yield and rots many of the tubers produced. Time will not permit of any detailed account of the disease now, and most of you will be thoroughly familiar with the subject. Two matters only, therefore, will be touched on here, namely, the occurrence of primary outbreaks and Blight resistance. It used to be supposed that the first outbreaks of Blight each season always occurred in the extreme south-west of the country; that in due course infection spread from them eastwards and northwards, in wave-like fashion, the rate of progression of the wave depending largely on weather conditions. For the past ten years or so records have been kept of the dates and localities of the first seasonal outbreaks of potato Blight, and they show that this wave of disease does not in fact exist. Although, of course, mainly owing to climatic conditions, the very earliest outbreaks generally do occur in the south-west and the latest in the north, yet, broadly speaking, outbreaks occur at numerous centres widely distant from one another and at no very widely different dates. A single stone thrown into the water at the edge of a pond will produce a wave (or a succession of parallel waves) that will progress until it reaches the edges and far end of the pond, the whole surface having been traversed from the one original source of disturbance. If a handful of pebbles is broadcast into the pond, however each will give rise to a circular wave; and these circles will expand and run into one another until eventually the whole of the surface of the pond will have been wave-traversed. If the whole handful is scattered not at one time, but distributed bit by bit, at comparatively short intervals of time the whole surface will also eventually be wave-traversed; and this is the kind of picture to bear in mind when considering the seasonal inception and spread of potato Blight here.

The practical bearing of this analogy is that when a farmer hears the Blight has once more put in its annual appearance somewhere in the country he should not wait for the advance of any wave of disease from a distance, but realize that it may be practically at his own door already and act accordingly. Each season, as soon as potato Blight has occurred again, in whatever locality, the Ministry of Agriculture makes the fact known as widely as possible through the Press and by other methods of publicity. The warning is repeated as further outbreaks are reported, and thus farmers are reminded that the time has arrived when spraying potatoes with Bordeaux or with Burgundy mixture should be undertaken.

One point in connexion with the records deserves to be mentioned. It is the comparative frequency with which the first outbreaks occur in proximity to old potato pits or clamps. It is known, of course, that the Blight fungus overwinters in the tubers, and, it is believed, in them alone. Blighted tubers thrown out of a pit and left lying about

are naturally dangerous sources of infection to neighbouring potato crops, for the fungus fructifies on them, and the spores produced are readily disseminated. Much could be done to retard and minimize outbreaks of Blight by paying stricter attention to plant sanitation and hygiene and thus suppressing foci from which primary infections arise. Moreover, more than is often attempted could be done to minimize attacks of Blight on the tubers by adequate and careful earthing up of the drills.

A potato variety resistant to or immune from Blight attack has for generations been a desideratum, and many attempts have been made to secure one. Nor have they been entirely unsuccessful, for a few varieties resistant both in haulm and tuber do exist. Unfortunately, they do not possess many of the other important characteristics that are bound up with a commercially valuable sort, and they have therefore not come into general favour. Some of them are late-ripening varieties, but one of them at least is an early one, and their resistance cannot be explained (as is sometimes supposed) by the assumption that they merely escape infection because they are not in a suitable stage of development for attack when the Blight fungus is active. Their resistance appears to be constitutional or inherent. Renewed attempts have been made during the past ten or twelve years, particularly in Germany, to raise a Blight-resistant variety that will be satisfactory from other points of view, and acceptable to the commercial potato grower. Failure to produce such a variety by breeding from already cultivated varieties alone led to the use by breeders of one or two highly resistant wild species of potatoes, as parents, in crosses with cultivated varieties. A few new varieties were thus raised possessing, apparently, resistance and many or most of the other required characteristics, and the prospects seemed particularly good. Alas, when these varieties were sent out, after a few years, for wider trial, they broke down, and became attacked by Blight. This happened successively with two sets of specially promising progenies, but there still remains a third set not yet fully tried out. The resistant wild species *Solanum demissum* is concerned in the derivation of this third lot, but there appears to be no obvious reason why the progenies raised from it should ultimately behave differently from those raised with the help of other resistant wild species.

Such disasters are of course almost heart-breaking to the breeder, and the question is:—How do they come about? The answer is that it is now thought that the Blight fungus exists in the form of more than one "biological species" (just as the Rust fungi do), and that a variety resistant to one biological species may be attacked by a different one. Further and very critical work is required before this belief can be regarded as based on an unshakable foundation; but if it should prove to stand fast, then the breeder's task is made a hundredfold more difficult; for a variety will have to be raised that resists the attack not only of those "biological species" of *Phytophthora infestans* that already exist, but also of others that may possibly come into existence in future.

There is another important aspect of the Blight resistance problem that may be alluded to in passing. It is the question as to whether resistance, even if it appears to be inherent or constitutional, is necessarily really permanent in the variety. Can external factors so influence the potato plant that Blight resistance becomes weakened or even entirely lost in the course of years when the variety comes into general cultivation? The scientific breeder will probably answer

no, if resistance is really bound up with the gene (the supposed material unit of the cell that carries the heritable characteristics of the plant), and seeing that propagation is entirely vegetative; but it will be up to him to demonstrate beyond doubt that Blight resistance is or can be so linked up and remain absolutely permanent.

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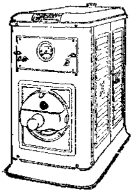

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Extract from Queensland Agricultural Journal, 1st March, 1934.

A PRIMARY PRODUCERS' SECRETARY.

The attributes of a competent secretary of a primary producers' organisation are discussed in the following extract from an article in "The Producers' Review" (Toowoomba) for January:—

A primary producers' organisation must have for its objective something above mere mercenary gain. The soul and spirit of farmer-organisation should be the appreciation and realisation of the fact that all primary producers belong to one family and that their interests are mutual, and one of the chief objectives of the organisation of any particular section of primary producers should be to eventually weld together in one big union all primary producers. This being so, what, then, should be the calibre and attributes of a primary producers' organising secretary?

First of all, he must be one of themselves; in other words, he must understand their outlook on life; he must understand and sympathise with that spirit of independence in the farmer and his wife that drives them on to the selection in its virgin state with no other assets than stout hearts and strong arms and the dream of a "home of our own." He must be possessed of a dynamic force that is the driving-power of his particular section of his organisation. He must "think" but not "act" for his executive bodies—the latter is their duty.

A primary producers' secretary is in a totally different category to that of a secretary of a business firm. A mere recorder of minutes is totally unfitted as an organising secretary of a primary producers' organisation. A primary producers' organisating secretary must have initiative, originality, constructive ability, and sufficient moral courage to stand for the ideals of farmers' organisation in spite of the effect it may have upon his own position.

The ideal farmers' secretary must understand that something in the makeup of the true farmer which abhors the name of master; that something which impels him to till the soil not altogether for the sordid desire of money-making, but the love to "plough and to sow, to reap and to mow," the keen interest in watching things grow, the love of producing with his own hands, the realisation that by the application of his own labour to the soil he has created something. The joy of his life has been reducing the soil to the finest tilth and planting it, realising that if nature smiles on him he will be rewarded for his labour as far as an abundant crop is concerned. But, alas! nature is not kind. Adverse seasonal conditions begin to cause heartache and disappointment. The ideal secretary must understand these joys and sorrows. They must be in his blood, otherwise he can never accomplish anything of real worth where the primary producer is concerned.

Such a secretary must feel that he is working, not merely for the purpose of holding down his job, but for the common weal. The true secretary of agricultural movements would not waste his time on the job if he were not accomplishing something; assisting to educate those whom he represents; ever aiming at a goal, no matter how far distant its accomplishment may be. No matter how much he realises that it will not be accomplished in his time, he must fight on, with others, in blazing the track. The mere routine secretary, who is happy wound up in red tape or is content to be just a rubber stamp for those who employ him, is of no value in any producers' organisation. Those who run may read, and he is certainly dull of comprehension who does

not see in the signs of the times a world-wide organisation of production and distribution. Australia—Queensland in particular—is leading the world in this particular direction with its agricultural machinery.

Throughout the world we hear the murmur of discontent from primary producers. To-day it is a small cloud on the horizon; to-morrow it will be an irresistible storm. The time has long passed when the primary producer should remain the bottom dog. But he does little or nothing principally because he has not the right men to drive him into action. These men are certainly hard to find; they are not born, but made—made through the hard school of practical experience in the first instance; made by the gift of vision and ideals. It is time that primary producers started to produce something besides commodities. They should produce organising secretaries by finding the men in the making, because they will be wanted if primary producers are ever to come into their own. Men are wanted who are not job-hunters, but men who know the potential strength of their own farming community and are prepared to devote a lifetime to developing it.

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CROPS AFFINITIES.

We would refer our readers to a most interesting article entitled "Crop Mysteries" by Mr. J. Sydney Cates in "The Country Gentleman" for April, 1934.

A new agricultural principle seems about to be brought to light and that is, that there is such a thing as Crop Affinities. That is, for some undiscovered reason, one crop of a certain variety seems to give wonderful results when grown, following a crop of another variety, irrespective of the Plant Food content of the soil.

In one experiment it was discovered that a crop following a certain type of weed growth did better than crops following fallows, although it would, naturally have been expected that fallowing would have built up the available plant food supply, whilst the weeds would have lessened it.

We mention some of these astonishing affinities:—Tobacco after Wild Rag Weeds and Horse Weeds did ever so much better than Tobacco after the best of the usual so-called soil improvement crops.

Irish Potatoes after Cabbages didn't do as well as after Squash.

Rutabages after cabbages made a phenomenal yield, whilst rutabages after rutabages did only half as well.

Mangels after Mangels gave a poor yield, but mangels following potatoes yielded three times as much.

These Agricultural mysteries are very intriguing indeed. The author of the article gives another one:—

Despite the fact that it is an accepted principle that our commercial crops suffer from water-logging of the root area of their soils, it was found that experimental corn did phenomenally well when a portion of the soil comprising their rooting area was water-logged. The more the water-logging the better the growth appeared, but when the last top sixteenth of an inch of soil was completely water-logged adverse effects became evident.

It has also been discovered that certain crops have definitely discouraged subsequent weed growth and that certain weed growths seem affinities to other crops.

Jogging one's memory we can recall certain growths of weeds peculiar to banana cultivations and others to cane, although these may vary in different localities; but where this study could be most useful to the farmer would be during the periods between replanting, as if we could discover the proper short crop or cover crop to grow during this period, we might very well be able to save ourselves the considerable work and expenditure in controlling weed growth whilst establishing the succeeding planted crops.

Who can say but that agriculture is a most interesting activity.

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The following is a part of the preamble to the original trust deed creating the Horace Plunkett Foundation which is an organization devoted to the creation and extension of the co-operative principle among agriculturists.

"Whereas it has been the main interest of the donor's life to work for rural, social and economic development, and being most fully convinced by an experience of many years, that it not enough to afford the worker on the land a livelihood, but that it is necessary to secure a life enriched with the social thought and interests of modern civilization, and that the prosperity of the rural community depends not only on greater efficiency in the methods of the farming industry and on the more economic organization of its business, but also on the development of a good rural social life, a policy which is summed up in the words, "Better farming, better business, better living"; and in particular desiring that there should be greater facilities for systematic study of the principles and methods of agricultural and industrial co-operation, in which lie possibilities of great promise for the future well-being of the rural community and of the nation as a whole."

It came to the Editor's attention, and it seemed so appropriate to our Jamaican conditions that it is reproduced in the hope that it might make its impression on the mind of every small agriculturist who happens to read it.

It is significant that the aim of this great and unselfish organization recognises that a mere existence for the farmer is not enough for progress.

Until we realize this and provide against it, we must not delude ourselves into believing that we are making satisfactory progress. Hoping for the best is the last resort of the incapable. Positive planning and action is the only method we can adopt, to ensure our moving out of our rut of "mere existence."

Extract from Circular of The Department of Agriculture, New South Wales..

THE USE OF CHEMICALS TO ENCOURAGE BURNING.

Despite the rather frequent expression of views to the contrary, neither saltpetre nor any other chemical is of any value in assisting the burning of stumps. The best way to deal with a stump that burns badly is to build a good pile of logs and brush around it, fire in the ordinary way, and cover the burning material, when well alight, with clay. Such a fire will smoulder for some weeks, and will gradually destroy the stump.

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EDITOR'S LETTER BOX.

The attention of livestock breeders and butchers is drawn to a letter which appears in our correspondence columns from Messrs. George and Branday, Merchants of Kingston, who are very large handlers of local hides for export.

We are privileged in reproducing below illustrations directing proper methods of skinning the animals. The increased value that would result on each hide were these instructions carefully carried out would mean quite a sizable sum which would be very welcome to the pockets of livestock breeders and butchers, especially in these times when the meat markets are so poor.

June 8, 1934.

The Secretary,
J. A. S.

Dear Sir,

We enclose you herein three diagrams, one showing the correct way to rip a hide from the cow, tbe other showing the correct way to rip the head, and the third showing what a correctly skinned hide should look like.

In Jamaica it is usual to sell the tail of the cow, and for this purpose the butt of the hide is usually deeply scooped out; this very much damages the value of the hide. It is not essential that the entire tail should be left on, as shown on the enclosed diagram showing what a correctly ripped hide should look like, but the butt should by no means be scooped out.

It is also not essential that the head of the animal should be skinned, n order to get the best value for the hide, but if the head is skinned, *he throat should by no means be cut across*, as this leaves the 'ace pieces of the hide attached to the body by only a very narrow strip, and renders it necessary for the tanner to cut off these pieces, and use them for making glue. The value of hides for making glue is only about 1d. per lb. in England, and as the freight on hides amount to very nearly this much, you will readily appreciate that if the tanners could be assured of getting well skinned hides, free from loose pieces, which they have to throw away, they would be willing to pay more for Jamaica hides.

If the butchers must, (through force of habit) cut the throat across, then the skin of the head should be entirely cut off from the body, as t is not worth shipping, and only reduces the value of the hide to which t is attached.

If you will publish the illustrations we enclose, we shall be greatly obliged, as we feel that you will assist to improve the flay and take-off of Jamaica hides, and incidentally, increase the value of the product.

Yours faithfully,
GEORGE & BRANDAY.

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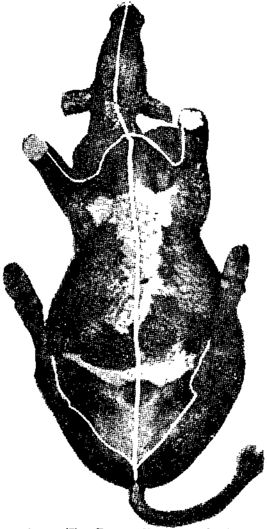

Figure (I)—Correct lines for Ripping.

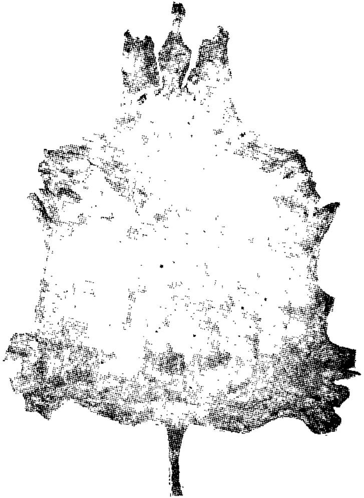

Figure (II)

Correctly ripped hide.

Figure (III)

Diagram showing the correct way of Ripping the Head, to take the Horns out so as to leave the Cheeks and Face as valuable as possible.

Rip from the Nostrils up through the eyes to the base of the Horns, and skin the hide off the Skull, leaving the Face attached to the back of the Neck, by as wide a strip as possible, as shown in Fig. (II).

THE MOLE CRICKET.

We submitted to Mr. Edwards, the Government Entomologist, a specimen of an uncommon insect which was found in a rubbish heap at the General Post Office.

We reproduce his letter reporting on this insect below.

This is of particular importance as will be seen and for this reason draw attention to the matter so that agriculturists all over the Island might keep a sharp look out for similar specimens should they unfortunately appear anywhere.

Ed.

7th June, 1934.

Dear Mr. Baxter,

In reply to your letter dated the 9th May, I have to inform you that I have examined the specimen submitted and found that it is the mole cricket, Scapteriscus (Gryllotalpa) didactylus, Latr.

The catch is very interesting as this insect which elsewhere (in Trinidad, etc.) is a very destructive pest, attacking young plants in fields and in gardens, is very rarely found here.

My predecessor, the late Mr. Gowdey, mentions it in his Catalogue Insectorum Jamaicensis, but he has left no specimens in the Divisional Collections, which is an indication that it is very rarely found, and it is the first time that I myself have come across it in Jamaica.

May I keep the specimens for our collection and may I also ask you to be so kind as to let me know whenever you find any other such specimen.

I send you herewith a sketch of the insect so that you may remember its general appearance. The shape of the forelegs is very characterristic.

Mole crickets live buried in the soil where they feed on the roots of plants. At night they frequently come above ground to cut young seedlings.

(Sgd.) W. H. Edwards,
Govt. Entomologist.

MISCELLANY.

An interesting test as to the holding power of various types of nails was carried out in Australia recently. This matter is of some importance especially to shippers of fruit who use crates usually made from soft woods. It was found that the rusted nail or the twisted nail had the higher holding powers of several various types tested out.

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PROGRESS OF RE-AFFORESTATION IN CLARENDON.

By W. L. Shirley, *Instructor for Clarendon.*)

That the practically treeless sections of the Bull Head Mountains of Clarendon were once suitably covered with trees some of which were of large size, is evidenced by the fact that at present all over the area are the stumps of huge trees, here and there are isolated patches of timber trees standing—their associate trees having been cut down years ago; that the older houses have been constructed of native timber; that these hills decades ago were the sources of wood supply to the various factories then existing; that a number of dry gullies and various ravines now only mark the courses of what were once actively running streams; that records show that the rainfall over a year is now very irregular as compared with the past; and, that water supply for domestic purposes in the various districts is now a problem; also, that bird life is very much reduced in the area.

The agents responsible for the present denuded conditions of these hill tops and slopes are obvious from the foregoing, except, further to add that lack of effective tenant control by proprietors allow for the careless use of fire, thus burning down huge fields of forest lands from time to time and killing the young trees.

The work of re-afforestation has been recently taken up and must be very much more concentrated and extensive to cope with the progress of the denuding agencies.

Within the last decade, some minor tree planting has been done in the James Hill and Nairne Castle sections where there are at present growing a few hundred cassia cyamea and riciroc trees on the holdings of settlers, also some cedar.

The Forestry Department, through its Forestry Officer, established two nurseries in Clarendon for the distribution of economic plant seedlings last year. These were unfortunately affected adversely by weather conditions, and fire burning. A few hundred seedlings were distributed by that officer from the Colonel's Ridge Nursery.

During the year, I distributed 7,000 plant seedlings obtained from the Assistant Conservator of Forests to settlers in the Kellitts—Chapelton, Mt. Providence, Colonel's Ridge and James Hill areas. Reports show that about 40% of these are growing.

An attempt has been made to bring the proprietors and their tenants together at a Public meeting under the auspices of the Branch Societies, with a view to discussing the influence of the present system of tenancy and the crops grown upon the forests on these holdings, The system of cultivating ginger, tobacco and yams especially has in the past greatly contributed to deforestation of the parish, and to arriving at some conclusion which would improve the situation. The floods of last fall interrupted this attempt, and the meeting is now being re-arranged by the Branches in the James Hill section.

If these areas are to be re-afforested, the careless use of fire must be kept under control and a definite re-afforestation policy must be proceeded with.

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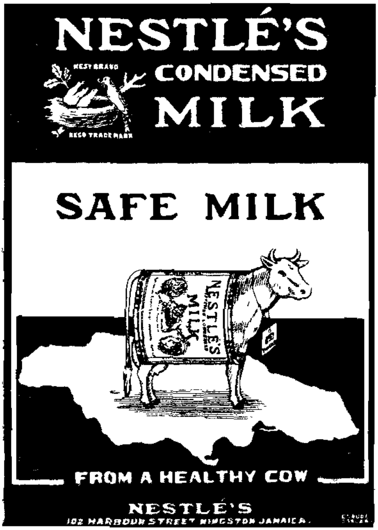

ZINC SULPHATE IN PLANT NUTRITION.

The Florida Grower for October-November, 1933, gives a very interesting article on the use of zinc in agriculture.

It is well known that there are very many mineral substances that are essential to the health of plants but of which traces only need be present to produce their effect; one of these happens to be zinc. The form of this mineral used for their experiment was zinc sulphate and it is interesting to note that poultry manure is one of the natural forms of our manures that possesses traces of zinc.

Applications of small quantities of zinc sulphate both as fertilizer and as spray cause the bronzing condition in Tung oil plants to improve and what is still more interesting to us, the curly leaf effect that citrus plants develop (called in Florida rosetting) under certain conditions improve considerably when treated with zinc sprays or sulphate of zinc in small quantities. The same favourable effect resulted when poultry manure was applied.

It should be borne in mind that zinc sulphate in quantity is harmful to plants and so no attempt at experimenting is recommended without the assistance of scientific advice.

HOLDINGS IMPROVEMENT COMPETITION, ST. CATHERINE

Richmond P.O.,
28.3.34.

The Chairman & Members,
Board of Management.

Gentlemen,

I have the honour to submit my report on the judging of the "Holdings' Improvement Competition" in St. Catherine, judged during August, 1932, and in March 5th to 15th this year.

In the first judging in August, there were seventy-one (71) entries, of which *forty-four* were judged, the others were found to be not qualified under the rules governing the Competition. The marks for that judging were duly sent on to the Supervisor. In the second judging *forty* entries were judged, the *other four* withdrew because they were unable to prepare owing to sickness or other adverse circumstances.

A mark sheet is attached showing the points gained under each head, the total obtained in the first judging, the increase on the previous judging, the percentage of the increase, the rate per centum of the awards, and the total awards to each Competitor.

More than half of these competitors have for the first time competed, while the others did so under the old system of the "Prize Holdings Competiton."

There is a great difference in the principle of these two competitions, as this Improvement Competition gives the Holdings that were in a poor and backward position a grand opportunity to show what special efforts can achieve, while the Holdings that were previously good, or in a fair order cannot show up in improvement in the proportion of the backward ones. This should be a great stimulating factor, and if the competitors continue to appreciate and live up to the standard, I venture to predict that in the next decade, there should be few poor holdings among the small settlers who are connected with the Jamaica Agricultural Society in the Island.

Work Done.—(1) Fencing, etc. This is one of the weakest points in the competition, but in many instances great efforts were made to improve. John Green of Giblatore who in the first instance had *no fence nor gates of any sort* erected a beautiful barbed wire fence, completely surrounding the Holding, and also erected a good gate, which only needed painting to complete it; while he obtained *no points* under that head in the first instance, he obtained sixty-five points out of a possible seventy-five in the second judging. Many others tried to repair or erect portions of new fences, and where there were no gates many draw rails were put up. One competitor only had up his fence posts, and asked me to count the number he had put up.

(2) House: Most of the poor houses were improved, repairs of one sort or another were done; furniture for the most part were added, cleaned up, or varnished, and houses and surroundings presented a clean and very tidy appearance, with attempt at a flower garden in many instances, quite a contrast to the appearance on the first occasion. One housewife was careful in telling me she had bought four (4/-) shillings worth of crockery since my previous visit, and another met me when returning from another district, and asked if I had taken note of her garden.

(3) Outbuildings: While there were very many poor outbuildings, and some were entirely wanting, new ones were erected in a few instances, and others were repaired and improved. The weakest point under this head was in a lack of stables, pens, fowl coops, etc., for domestic animals; in this Mr. Garnett Frankson of Bartons stands out as a prominent exception, and example in the district, having erected excellent fowl houses, coops, etc. The sanitary condition in every instance was considerably improved.

(4) Arrangements for Curing and Storing: This has been a general weak point in all the competitions and so it was in this, while there were a good many barbecues, in the vast majority of cases there were no proper arrangements for storing the produce after it was cured or while being cured, some doing so in a part of the dwelling house.

(5) Manuring and Mulching: This was another weak point, very little was done in the proper way, there were a few compost pits, just hurriedly dug for the purpose of the competition, but it was quite evident that there was no regular system, and the method of applying the manure was very faulty in the majority of instances.

(6) Staple Crops: These consist chiefly of coffee, some bananas, a little cocoa, fruit trees of various sorts, some citrus, and canes in many instances. While there was a fair attempt made in pruning the coffee, attention has still to be given to spacing, removing gormondizers regularly, and everything to prevent overcrowding. Much has still to be learnt in the cultivation of bananas, the proper method of trenching in particular and suckering. The trenches for the most part were very feeble attempts, with only one or two exceptions as Messrs. Ellis of Macca Tree and Condell of Crofts Hill. Some good efforts are being made in the cultivation of citrus. Paul McKenzie of Crofts Hill stands out as a prominent leader to all the others in this item.

(7) Catch Crops: This item is fairly well looked after with a few exceptions, that are very poor. It is, however, just the beginning of the Spring planting season, and a fair start was being made in the majority of the holdings. There were a few instances of very good tobacco being grown.

(8) Live Stock: On all the holdings there were some live stock of some kind including the horse, mule, donkey, cow, goat, pig, fowl. There were one or two who also owned rabbits, and two reared bees. The exceptionally severe rains experienced since August, almost to the time of the second judging, accounted for the loss of several live stock and the very bad condition of others, because there was not ample provision made for their protection from the severe weather, by way of stables, pens, etc.

(9) General Cultivation on the Holding: On nearly all the Holdings there was good evidence of some weeding done, but much more is required to be done in forking and trenching, while allowance can be made for the small percentage done owing to the severe weather during the period under review, this same cause stands to reason why there should be much more and better planned trenches. Pruning for the most part was general.

(10) Tools: While the usual agricultural tools such as the hoe, fork, spade, pickaxe, etc., were always in evidence more or less on each holding, none of the competitors possessed pruning tools and only one owned a budding knife.

(11) Best results under difficulties: Lack of financial means was mostly given for the existing difficulties, but the texture of the soil in different localities and the abnormal weather conditions during the period can well be regarded as other difficulties.

(12) Proportion of Land under Cultivation: Competitors have fully realized the value of the lands they possess, because where it was not all cultivated the remaining portion was utilized for rearing stock of some kind.

Remarks—During the first judging in August exceptionally bad weather conditions were experienced, occasioning extra travelling and extra expenses, having been pent up for days and could not go one way or the other. In some instances after travelling miles we found that the roads were blocked for miles, and there was no possible way to reach our destination, hence we had to retrace our steps without having been able to perform our duty. On the 16th to 17th August there was a most trying experience. I could get no communication from home by road or wire, and there were various reports as to the destruction wrought all around, then when there was news of only one possible way I had to take the chance at very great risks.

In conclusion I have to express my appreciation of the general bright and cheerful spirit of the competitors on the whole, the influence the competition has on the districts it touched, as was evidenced by other settlers trying to copy from the competitors there methods of preparation, and I bespeak for them much success and prosperity in the future if conditions allow, and they, on their part live up to the standard of the requirements.

(Sgd.) J. A. Banks,
(Judge in Competition).

Result ot Prize Holdings' Competition—St. Catherine.

Instructor for District—O. P. Martin.

Name of Competitor	District.	Postal Address.	1st Judging.	2nd Judging.	Increase.	Percentage.	Prize. £ s. d.
1. A. Jackson	Bartons	Bartons	220	575	355	161	4 17 8
2. R. Baily	Giblatore	Bog Walk	185	345	160	86½	2 12 0
3. Z. Keith	Radcliffe Pk.	Spanish Town	170	310	140	82	2 9 11
4. G. Frankson	Bartons	Bartons	380	655	285	77	2 6 11
5. S. Ellis	Macca Tree	Brown's Hall	320	532	212	66	2 0 4
6. J. Green	Giblatore	Bog Walk	360	580	220	61	1 17 3
7. Mrs. S. Vaughn	Bartons	Bartons	350	562	212	60½	1 17 0
8. J. Condell	Crofts Hill	Crofts Hill	275	440	165	60	1 16 8
9. T. Harris	Brown's Hall	Brown's Hall	415	665	250	60	1 16 8
10. Mrs. I. Tulloch	ditto	ditto	295	465	170	57¾	1 15 2
11. Mrs. T. Golding	Bois Content	Bellas Gate	245	382	137	56	1 14 3
12. L. Stephens	Bartons	Bartons	315	490	175	55½	1 14 0
13. D. Bartons	Guanoaboa Vale	Guanoboa Vale	350	535	185	53	1 12 6
14. E. Reid	Keith Hall	Sligoville	320	480	160	50	1 10 8
15. P. McKenzie	Crofts Hill	Crofts Hill	485	708	223	46	1 8 3
16. A Wallace	Bois Content	Bellas Gate	265	375	110	41½	1 5 6
17. A Ayre	Waterloo	Bog Walk	250	353	103	41	1 5 3
18. W. Good	Bartons	Bartons	345	460	135	39	1 4 0
19. N. Talbott	Sligoville	Sligoville	235	323	88	37½	1 3 1
20. H. Owen	Richard Hall	Sligoville	205	282	77	37½	1 3 1
21. E. Worell	Waterloo	Bog Walk	400	540	140	35	1 1 7
22. Mrs. C. Brown	Brown's Hall	Brown's Hall	320	431	111	35	1 1 7
23. F. Golding	ditto	ditto	225	300	75	33⅓	1 0 7
24. J. Bair	Crofts Hill	Crofts Hill	395	525	130	33	1 0 5
25. D. Brown	Keith Hall	Sligoville	330	437	107	32½	1 0 0
26. A. McCurdy	Bellas Gate	Bellas Gate	275	357	82	30	0 18 7
27. Mrs. C. Russell	ditto	ditto	435	555	120	27½	0 17 0
28. S. Cooper	Keith Hall	Sligoville	290	369	79	27	0 16 9
29. C. Thompson	ditto	ditto	255	310	55	21½	0 13 5
30. S. Brown	Ewarton	Ewarton	440	532	92	21	0 13 2
31. W. Pitt	Sligoville	Sligoville	270	321	51	19	0 11 11

RESULT OF PRIZE HOLDINGS' COMPETITION—ST. CATHERINE, *contd.*

Instructor for District—O. P. Martin.

Name of Competitor	District.	Postal Address.	1st Judging.	2nd Judging.	Increase.	Percentage.	Prize.
32. G. Warmington	Macca Tree	Brown's Hall	310	365	55	17½	0 11 0
33. S. Anderson	Giblatore	Bog Walk	260	304	44	17	0 10 9
34. F. Cook	Ewarton	Ewarton	495	578	83	17	0 10 9
35. C. Brown	Waterloo	Bog Walk	180	211	31	17	0 10 9
36. J. Henry	Facey	Troja	615	718	103	17	0 10 9
37. C. Stoddart	Bartons	Bartons	330	385	55	16¾	0 10 6
38. J. Sinclair	Ewarton	Ewarton	250	290	40	16	0 10 1
39. N. Parker	Waterloo	Bog Walk	275	318	43	16	0 10 1
40. F. Ayre	Sligoville	Sligoville	350	404	54	15	0 9 8
							£52 0 2

(Sgd.) J. A. BANKS,
Judge.

JUVENILE SECTION.

The Eccleston (Macca Tree) Juvenile Vegetable Growing Competition.

The plots in connection with the Eccleston Juveniles were judged on the 15th May, when there were 35 competitors. The Juveniles were classified as follows:—A. Boys in school; B. Girls in school; C. Those out of school. This is the Branch's first attempt at this kind of competition and it has proven very successful. Cabbages, turnips, beet, Irish Potatoes, sugar beans, cucumber, scallion, tomatoes, sweet potatoes, cow peas, corn, cocoes, red peas, lettuce, cauliflower, okra, pepper, were seen in these plots. The quality of the crops was surprisingly good due to the tillage and manuring that were done. Neatness and cleanliness were praiseworthy features of these plots. The pruning of tomatoes needs more attention if better results in quantity and quality are to be obtained. Several Juveniles lost marks as a result of this aspect of the work. Some Juveniles also put their plots under shade thus seriously affecting the healthy growth of the crops. The Teacher T. N. Golding and Miss M. J. Fletcher president and Secretary of the Senior Branch deserve much praise for the practical help they gave the Juveniles. The marks were apportioned as follows:—Fence 5; Alignment 15; Variety 20; Tillage 25; Manure 25; General 10. Total 100. The folllowing is the order of merit according to classes:—

Class A.

Boys in School.

1.	Leonardo Bennett	82
2.	George White	81
3.	Altamont Thomas	74
4.	Percival Lowe	69
5.	Ferdinand Smikle	55
6.	Steadman Grant	51
7.	Joseph Hales	49
8.	Sidney Johnson	48
9.	George Watts	45
10.	William Scott	43
10.	Winston Johnson	43
11.	Peter Simpson	35
12.	Joseph Woodhouse	30
12.	Constantine Lewis	30
13.	Winston Gardner	15

Class B.

Girls in School.

1.	Gwendolyn Crossby	86
2.	Mary Warmington	82
3.	Ciceline Wright	63
4.	Attica Richards	59
5.	Mavis Lewis	51
6.	Adella Harris	30
7.	Susan Allen	15

Class C.

Those out of School.

1.	Mabel Graham	92
2.	Noel Craig	76
3.	Jane Price	59
4.	Eric Thompson	55
5.	Jane Johnson	52
6.	Dolores Hales	49
6.	Eda Johnson	49
7.	Alicia Spencer	46
7.	Leslie Price	46
8.	James Christian	44
9.	Charles Harris	41
10.	Osmond Daniels	31
11.	John Spencer	22

O. P. MARTIN
CLARENCE BYLES } Judges.

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Fair Fermented	..	18/- " "
Estates Fermented	..	19/- " "
Coffee—Good Ordinary	..	40/- " "
Fine Ordinary	..	42/- " "
Manchester-B	..	42/- " "
Manchester-A	..	44/- " "
Ginger—Ordinary	..	52/- " "
Medium	..	54/- " "
No. 1	..	64/- " "
Honey—White	..	2/3 per gal. delivered Kingston
Pale	..	1/9 " "
Light	..	1/6 " "
Dark	..	1/3 " "
Kolanuts—Sound quality, well cured		5/- delivered Outport
		6/- " Kingston

Orange Oil—Sweet—sound quality 2/9 per lb. delivered Kingston.
Sarsaparilla—Well cured, red roots 38/- per 100 lb. net weights, delivered Kingston.
Wax—Pure and clear, 7d. per lb. net weights, delivered Kingston.

SUGAR CANE.

Record Yield in Hawaii.

What is claimed to be the world's record sugar production is reported from Hawaii, where in the plantation of the Hawaiian Sugar Company, *in Kauai, a patch of nine acres averaged 186 tons of cane per acre,* yielding slightly over 21 tons of commercial raw sugar per acre, or just under nine tons of cane to one of sugar. The variety grown was H 109. The patch was part of a field that had been fallow for a number of years. Besides this, the same company harvested two other fields in the same area which averaged 137 tons of cane, yielding more than 16 tons of sugar; these were planted with H 109 and POJ 2878.—(*Inter. Sugar Jour.* Vol. XXXIV, No. 404, p. 319.)

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31 Olivier Place - 40-42 Orange Street.

HOUSEHOLD HINTS.

Calf's Foot Jelly.

To prepare: wash 2 calf's feet thoroughly in boiling water, chopping each into 4 pieces. Put these into a saucepan with cold water to cover them, and allow them to boil for 5 minutes. Lift out the 2 feet, throw away the water, and replace the feet in the saucepan with 5 pints of hot water, boiling it gently for 5 to 6 hours and keeping the stock well skimmed. By this time the liquid will be reduced to about 1 quart. Strain it off, let it get cold, when it will be a jelly, and them remove every trace of grease from the surface, finally wiping it with a clean cloth dipped in boiling water.

Turn the jelly into a clean pan, add to it ½ pint of sherry, 6 ozs. of loaf sugar, the thinly pared rind and strained juice of 3 lemons, 3 cloves, 1 inch of cinnamon, and the washed crushed shells of 2 eggs and their lightly-whisked whites. Whisk all these ingredients over a moderate heat until the jelly boils up to the top of the pan. Let it sink again and reboil it. Do this twice; then allow it to settle for 10 minutes by the side of the fire, keeping it covered. Strain it into a basin through a clean, coarse teacloth kept solely for this purpose, which has first been scalded by pouring boiling water through it. Pour the jelly back again through the cloth two or three times if at all cloudy. Next pour the clear jelly into a wet mould, or moulds and leave till set.

It is wise to test the stiffness of this jelly by cooling a little of it quickly. If too stiff add a little more sherry, water, or lemonjuice. If wished, omit the wine and use more water and lemon-juice or add brandy or port wine in place of sherry. If a clear jelly is not required leave out the shells and whites of the eggs, and after boiling the jelly for a few minutes, strain it through a hair seive or a fine strainer. This is sufficient for about a quart of jelly.

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LECTURE DELIVERED TO THE LIGUANEA BRANCH OF THE JAMAICA AGRICULTURAL SOCIETY.

By Mr. C. R. M. Codling, M.R.S.I.

Sanitary Agriculturist.

Mr. President, and Fellow-members of the Liguanea Branch of the Jamaica Agricultural Society, I crave your sympathy in my endeavour to bring before you what I consider a matter of vital interest in the existence of this or any other Branch of our Society.

Well may we meet at each meeting and prospect big schemes; well may we forecast the possible advanced results of pine, banana, citrus, cane, pear, and even paw-paw industry; well may we advocate for more roads, irrigation, railway extensions, factories of varied kinds, vocational training for young and grown-ups; the floating of big loans without the after thought that these have to be repaid, and the one hundred and one other demands with which our Societies as a medium between government and petitioners are very often faced; but there is one basic point on which all the aspirations and requisitions of the Agriculturist seems to hang, and that is, the health of the individual member. His personal activity, the activity of the Branch to which be belongs, the ability to deal with, and make prolific, apparently latent or dormant measures can only be when the health of the members concerned is conducive to such ends.

Because of these points, I have chosen as my subject to-night, "The Sanitary Agriculturist," and I crave your indulgence in the points I now proceed to make.

First—I begin with his Food. His regular muscular action, with the attendant oxidation of the food material in the body, and the constant repair of tissue calls for daily well selected diets—diets with a sufficient amount of carbohydrates (to keep up the oxidation) and proteins (nitrogenous) to make up for the repair of tissue; vegetables, and fruits, and sufficiently safe water (boiled in places where sufficient filtration or chlorination is not resorted to) should be taken, the two former in the mornings, and not less than two quarts of the latter during the day to aid the digestive processes. Stimulants should be avoided, until for medicinal purposes. His occupation requires the saving for use all the muscle he can build, and kept built, hence substances without food qualities in them are dangerous. His diet differs from that of the Clerk where less calories are required. His food should be cleanly cooked and served. Servants and others whose health history is not sufficiently assured may have regretable results. Individual drinking cups and eating utensils should be used, especially when children of tender years are considered. The biting of bits of food and passing them on, the smoking of one and the same pipe by different individuals should be stopped . Meat should be well cooked especially pork. Sleep should be postponed for some time after a well masticated meal. If this rule is not observed, stomachic and gastric disorders may arise, as sleep initiates rest of muscles.

Secondly—I deal with his person. Many an agriculturist shelters tenaciously under the idea that he must be dirty; he tills the earth, and in consequence, he must be inseparable from dirt. This is a mistaken notion and should be changed. The sooner he realizes that he must be a companion with dirt so long as it is necessary to be, that is, during the time he is pursuing his actual occupation, the better it is for him. His contact with possibly polluted soil, with various Bacteria, Hookworm—larvae, etc., should create in him a greater fondness for his regular baths. With his perspiration he should see broken particles of fat with dirt clogging the pores and preventing the escape of waste matters, and resort to his rough soap and towel to get rid of these. The care of his feet should not be of passing value. He not only needs protection from the prickles, and swamps that he occasionally meets, but against Hookworm infection (preferably known as ground itch) etc.; against cuts and bruises, where yaws, ringworms, syphilitic ulcers, may result after association with contacts or flies.

His teeth should also be looked after. They need care. Bits of chewstick chewed or beaten to brush-like usefulness form an efficient dentrifice. Decayed teeth should be extracted: They are useless and harmful, and the dentist should be made to fill the gap. The agriculturist should be able to chew his food well. It is an important part of his existenee. A sick agriculturist helps to kill Industry. His eye with reference to glare, material, and work, his hair and other portions of his body must have their share of careful attention.

Thirdly.—His Surroundings.—This is very important from a sanitary standpoint, as very often in his endeavour to excel industrially and economically, he fails to focus thoroughly, if at all, the harm that often accrues from neglected health measures.

Let me here examine the situation around his dwelling. We will ask permission to enter inside later. The first thing one may notice is that the house is situated on the lowest portion of the land where sufficient gradient for proper drainage and safety against damp does not exist. The Sanitary Agriculturist must rid himself of these conditions.

It is not uncustomary to shelter-belt houses (in the effort to establish citrus and orange, pear, and mango groves on limited space) with over crowding trees. The sanitary agriculturist knows sunlight is absolutely necessary both to the life of the animal as well as the vegetable world, and its proper diffusion is a matter of study and systematic action where both are concerned. The application of manure to crops may even have unpleasant results from a health point of view. Fly breeding (and flies have been noted carriers of the bowel filth diseases, typhoid, dysentery, diarrhoea, etc.) may be instituted. The sanitary agriculturist will treat his manure to prevent such conditions arising. Tins and old unused vessels left to rot (perhaps on many occasions by careless servants) or indifferent members of the agriculturist's family may lead to mosquito breeding chiefly of the culicine class, broken pits in privies and water closets may also lead to above results drains not properly graded to allow for stagnant water, ponds, pools, barrels, and tubs, etc., with water being allowed to stay any length of time above three or four days may lead to the breed of any of the Anopheline, Culex, or Aedes group of mosquitoes transmitting Malaria, dengue or yellow fever, if there is ever found a possible contact or carrier. (I might mention that in these days of rapid transportation when we are only about four hours away by air from certain countries where yellow fever, and other mosquito-transmitting diseases are, or were, in evidence, our caution can't to be too great against moqsuito breeding). Next, I must emphazize the need for a sanitary latrine in each home. Between fourteen or fifteen years ago when the Rockefeller Foundation began Co-operative Health Work in the Colony, they first stressed the need for the construction, care, and regular cleanly use of sanitary latrines. To-day we find the constructions in around 99% of the homes, but care and cleanly use has been somewhat neligible. The reason being in many cases that the more intelligent people whose ideas should permeate and dominate domestic sanitation leave the greater portion to irresponsible servants, who are either too lethargic to be efficient, or they hail from homes that have been devoid of even the attempt of this measure of sanitation, hence many very unfavourable results. The sanitary agriculturist should himself be a domestic health officer if the best results must be attained. He must resist and conquer false modesty. If he keeps in mind, and always forcibly, the diseases emanating from an insanitary latrine, and the loss of time, and energy and money, his action regarding maintained sanitary conditions would be a settled policy.

Water Supplies—The Agriculturist's Water Supply is a very important phase in his existence. Though I have already touched on the matter, I must again emphasize (a) The source. No water should be used if derived from the following sources without proper treatment Shallow well or pond water surface: Water flowing through cultivated land. River water contaminated with decaying vegetation, and stored rain water, are suspicious sources.

Rainwater—Upland Surface Water.—Properly protected spring water are fairly wholesome supplies. As most supplies of water contain alcium and magnesium salts *greatly in excess of what is necessary for the health of the body, boiling of even the most* apparent-pure supplies for drinking purposes especially, is absolutely necessary.

The *Public Health Act of 1875 of England gives a well considered formula for domestic* supplies per capita of population per diem as follows:

For Domestic Purposes	..	12 gals.
For General Baths	.. ..	4 "
For Water Closets	.. ..	6 "
For Unavoidable Waste	..	3 "
Making a total of	..	25 gals.

The sanitary agriculturist should aim at utilizing for irrigation purposes especially, or collecting in soakaway pits, his waste water from bath, kitchen, wash house, etc. The results are improvements in the health and economic condition. No stagnant water should be left around dwellings or districts, but if it is compulsory that ponds or catchments be kept, then the following points are noteworthy:—

(a) They should be kept free of weeds.

(b) Their sides should be kept vertical.

(c) They should be kept stocked with fish (preferably Ticky-Ticky). These aid in the check of mosquito-breeding. Useless depressions containing water should be drained, or filled, or oiled, as occasions demand. Pig, cattle, goat and horse pens should be constructed of suitably impervious materials with sufficient drainage for the safe application of fœcal and urinal solutions (with their component nitrites and nitrates) suitably treated, to the plants. Fly-breeding centres will thus be lessened or obliterated.

Pets.—The agriculturits may have pet animals, possibly cats, dogs, pigeons, parrots, and even monkeys, in some cases. Reasonable limits should be set to their caresses, and companionship, especially when they are allowed to roam at large. It is not uncustomary to hear dogs, cats, etc., being taken into beds of individuals without being first washed and cleaned. In many cases they are made companions or playmates of children of tender years. The results from an unhealthy surrounding are obvious. The sanitary agriculturist must be keen.

Neighbours.—The sanitary agriculturist has to play several roles. Besides the economic responsibilities of the household, he should be to a great extent his own Health Officer. He should get himself acquainted with the means and ways of combatting well-known infections, yet preventable, diseases. His whole life and existence is based on the amount of honest day's work his staff and himself can carry through. Procrastination to him is at par with the praedial thief, and so his vigilance cannot be too marked. No false modesty nor surface-set love should mar his activities in detecting and helping to right conditions, when infectious diseases appear in his neighbourhood. He should give such advice in a manner befitting the occasion, and when his knowledge and power have been exhausted refer to other higher constituted powers. His delay may ultimately cause him to pay.

His Home.—The Home of the sanitary agriculturist is of vital importance to his physique and economics. It may not be costly, but it must be hygenic. It should be constructed at an elevation, and with materials that should ensure it being damp-proof and with ample floor and other ventilation. In fact the following points taken from Clark's Sanitary Manual might well be adopted—

1. A dry site, mainly dependent upon the facility with which rain can pass off, or through the soil, and the depth of the subsoil water, which should not be less thatn 8 feet.
2. An aspect which gives light and cheerfulness.
3. An abundant supply of pure water and good drainage.
4. A system of ventilation which carries off all respiratory exhalations.
5. A condition of house construction which ensures perfect dryness of the foundations walls, and roofs.'

Apart from the points I have already mentioned he should see that no careless spitting is indulged in.

The primitive idea of "God Sickness" should be abolished. Fly-breeding centres should be wiped out. Tubercular patients should be suitably isolated, and treated. Proper concurrent disinfection should be done in infectious cases, regularly and well.

On the Agriculturist in this country rests the prosperity of all other branches of industry. He must be a healthy man if the country must progress.

A sick agriculturist, I repeat, means a dying Industry.

'I thank you Mr. President, and Members for your sympathy and hearing.'

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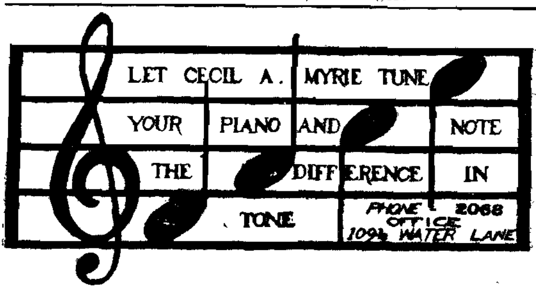

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BRANCH NOTES.

All Reports received are acknowledged in this section of the Journal. This month we have only been able to put in print Notes from Branches who have not yet had a publication this year.

Branch Secretaries should **write on one side of the paper only.**

[Ed.

ST. ELIZABETH: Bull Savanna.—Meeting, May 14. Present: President W. H. Hanson and 22 others. "Gleaner" report of Planning Committee was read and resolution asking for a change of location of proposed Bombay mango plot in St. Elizabeth was passed. Matter re road was explained and resolutions passed re (1) employment of strangers on roads to exclusion of district labourers. (ii) bridge over Alligator Pond River and (iii) Post Office at Junction. Seventeen new members enrolled. Meeting adjourned with the National Anthem.

Alligator Pond. C. A. B. Blythe. Secretary.

Carisbrook—White Hill.—Meeting 22.5.34. Present: Rev. P. E. Holmes, President; other officers, Instructor G. W. Wray, P. St. L. Bacquie, Supervisor of Instructors, and nine others. Much pleasure was expressed at the presence of the Supervisor who dealt exhaustively with the rearing of small stock, specializing on the goat. Re the procuring of a boar from Grove Place, correspondence disclosed that as there were a number of 'bookers' ahead, the Branch would have to wait its turn. Instructor Wray gave a very interesting lecture. One member asked the cause of the wilting of corn plants as noticed before the cessation of the heavy rains resulting in the spoiling of the ears. Arrangements were made for the starting of a citrus plot. Information re Irish potatoes was obtained. The meeting closed with the National Anthem.

Maggotty P.O. S. B. Atkinson, Secretary.

Middle Quarters.—Meeting 3rd May. Present: Messrs. N. C. Lewis, President; Instructor G. Wray, 5 other officers, 11 members and several visitors. President introduced Instructor. Correspondence was dealt with. Sale of the rice crop was dealt with and the formation of a Rice Growers' Association discussed. It was decided to obtain a ram of special breed for service in the district.

Officers elected were:—President, N. C. Lewis; Vice-Presidents, J. M. Cooper, J. Salmon, A. Comrie; Secretary, H. L. W. Wilson; Assistant Secretary, Mrs. C. L. Hitchman, Treasurer, Mr. C. A. Roxburgh A working committee was also named. Report of an Authorised Person was received Meeting terminated with National Anthem.

Middle Quarters P.O. W. L. Wilson, Secretary.

Merrywood.—Meeting 15th May. Present: 22 members, 4 visitors and Instructor Wray. Mr. A. L. Jamieson, Vice-President presided. Resolutions for the Associated Branches were passed. Delegates were also appointed for the same meeting. Mr. Wray's address was very instructive and well received. In his address he advised every member present to pledge himself or herself to bring in one new member. After the meeting he visited the holdings of two members where he demonstrated the budding of citrus plants. He promised to speak on soil fertility at next meeting.

Ipswich P.O. I. Leo Roy, Secretary.

HANOVER: Hanover North-Western.—Annual meeting 7th May. Attendance was good and included Instructor Hastings. A resolution of sympathy with the Rev. B. C. Lumsden in his recent sad bereavement was passed. The Secretary read his Annual Report. Officers were elected as follows: Honorary President, Rev. B. C. Lumsden; President, Mr. R. J. Anderson; 1st Vice-President, Mr. J. Harvey; 2nd Vice-President, Mr. D. Scott; 3rd Vice-President, Mr. G. Winham; Secretary, Mr. B. E. Campbell; Treasurer, Mr. R. A. McKenzie. The Instructor addressed the meeting, urging the protection of cocoanut trees against bud-rot, and the cleaning and trenching of banana fields. Delegates were appointed for the Half-Yearly meeting of the Hanover Branches Associated. Minor matters were discussed and the meeting terminated with the singing of the National Anthem.

Askenish P.O. B. E. Campbell, Secretary.

Sandy Bay.—Meeting 1st May. Present: J. B. Lawrence, Esqr., President; Instructor Hastings, many other members and visitors. Letter from Parochial Board was read, stating that the maturnity nurse residing at Hopewell will attend cases in Sandy Bay. Resolutions for the Half-Yearly meeting were dealt with. The National Anthem terminated the meeting.

Sandy Bay. R. GEO. DINHAM,
Secretary.

ST. JAMES: Bickersteth.—Meeting 3rd May. Present: Mr. H. A. Denton President; Instructor W W. D. Marr, and 14 others. Minutes and correspondence were taken. Delegates were appointed to represent Branch at meeting of St. James Associated Branches. Instructor lectured on "Banana Borer." Minor matters were dealt with. Meeting adjourned.

Montpelier P.O. LEO A. SPENCE,
Secretary.

CLARENDON: Brandon Hill.—Meeting 21.5.34. Present: Instructor W. L. Shirley, the President, Mr. N. A. Robotham, other officers, forty members, and nine visitors. Two new members enrolled. Minutes and correspondence were dealt with. Children from Day-school remdered a beautiful song and were thanked. Authorized Persons reported. Delegates to the Half-Yearly Meeting of the Clarendon Branches Associated gave reports. Instructor exhibited specimens of 'banana-borer' and 'striped weevil' borer, and spoke on the harmfulness of these insects, and methods to detect, catch and destroy them. Spoke also on 'The Growing of Citrus.' He advised the care of other trees, such as Bitter Damsel, Birch and Sweet-wood,—woods which are now in demand. Minor matters dealt with. Meeting adjourned after National Anthem.

Colonel's Ridge P.O. (Miss) E. A. GRAHAM,
Assistant Secretary.

Frankfield.—Annual meeting 27th April. Present: Full turn out of members, and a few visitors. Water supply came in for much discussion. Mr. Sharpe offered to assist by bearing half the cost of getting the water to a certain point from the source. Secretary presented his Annual Report which was adopted. and thanks accorded him. The President as delegate to the Clarendon Branches Associated gave his report. The special references to citrus trade, borers, field sanitation, and rearing of small stock were very profitable. All the officers for the past year were re-elected, and Mr. J. E. McKenzie was elected 3rd Vice-President. A committee of three was appointed to audit the accounts. Mr. Sharpe in his address comparing Jamaica with British Honduras in location, fertility of soil, production and marketing of bananas, showed that Jamaica was in a better position. Vote of thanks was tendered him. Instructor Thompson gave an interesting lecture on the cultivation of sweet potatoes for export, and Irish potatoes for local trade. Three new members were enrolled. National Anthem ended the meeting.

Frankfield P.O. W. F. EDWARDS,
Secretary.

Kellitts—Chapelton.—Annual meeting 9th May. Present: Messrs. S. S. Bailey presiding, nine other members, Instructor Shirley and many visitors. The obtaining of a new grindstone was shown to be of great necessity, and members agreed to contribute towards the fund. Reference was made to the recent death of the Assistant Secretary, Mr. A. Hall, and the Secretary instructed to send a letter of condolence to his father. Miss MacDonald gave a valuable report of the meeting of the Clarendon Branches Associated. The other Delegates supported what she said. The report was adopted and she was thanked. Reports from the President, Secretary and Treasurer were submitted and adopted, and the officers received the thanks of the house. All the officers were re-elected. A new member was enrolled. Miss H. Thompson rendered a beautiful song and was thanked. Minor matters received attention and the meeting adjourned.

Woodhall P.O. (Miss) I. E. WILLIAMSON,
Secretary.

Pleasant Valley.—Meeting 29th May with 25 members present. R. O Terrier, M.P.B. in his address stressed the need and uses of the Society. Mr. H. G. Dunkley, President of the Clarendon Branches Associated in his usual style fully outlined the aims and usefulness of the Society. Mr. I. B. Fox also spoke. They were accorded hearty votes of thanks. Authorized persons nominated were:—Messrs. W. Sweeney and A. Newman. The National Anthem brought meeting to a close.

May Pen P.O. MRS. A. A. FLYTER,
Secretary.

Richmond Park.—Annual meeting 26th April. Present: Mr. J. H. Anderson, President; Instructor Shirley, and 26 others. The instructor spent the day in the district, visited holdings of members and did citrus budding at the nursery. Re yellow yam Competition the judges gave a report. Mr. N. Williams won the first prize. Mr. Temple delegate to the Half-Yearly Meeting of the Clarendon Branches Associated

gave an interesting report for which he was thanked. The Secretary's report for the year was very much appreciated. The Instructor commenting on the report paid a warm tribute to the Secretary. The Treasurer gave a very satisfactory report on financial affairs. Mr. Dunkley gave a very instructive and interesting address on coffee curing. Election of officers resulted as follows:—Mr. J. A. Anderson, President (re-elected); Messrs. G. Harris, H. Marshalleck and S. A Weathers, Vice-Presidents; Mr. E. N. Clark, Treasurer (re-elected) and Miss L. V. Robinson, Secretary. Meeting terminated with the singing of the National Anthem.

Richmond Park P.O. (Miss) L. V. ROBINSON,
Secretary.

ST. THOMAS: Airy Castle.—Meeting 8.5.34. Present: O. C. E. Friend, President; Instructor U. A. McLaren and 28 others. Matters arising from the minutes were dealt with, also resolutions for Half-Yearly Meeting of Associated Branches. Mr. A. H. Robertson, J.P., gave a splendid lecture on the growing of tomatoes, and the Instructor on coffee. They were heartily thanked. Meeting terminated with National Anthem.

Port Morant P.O. J. E. A. ROBINSON,
Assistant Secretary.

WESTMORELAND: Beeston Spring.—Meeting 25th May. Present: Mr. J. N. Fletcher, President; other officers, Instructor G. Wray, and 15 others. One new member was elected. Resolution re repairs on Parochial Road was passed. Instructor Wray discoursed on the value of agriculture and the necessity for a Juvenile Branch; spoke on all aspects of soil fertility. He was heartily thanked. Minor matters were dealt with. Singing of the National Anthem terminated the meeting.

Beeston Spring P.O. C. G. SIMMS,
Secretary.

Sheffield.—Meeting 26th April. Present: Mr. T. A. Campbell, President; Instructor J. A. Graham, (who was in the village during the day visiting holdings and engrafting) and 12 other members. Officers elected were:—Mr. T. A. Campbell, President; Mr. F. Touzalin, 1st Vice-President, both re-elected, Mr. E. C. McLeod, 3rd Vice-President; Miss M. M. Jackson, Treasurer; S. M. Hall, Secretary; both re-elected. Treasurer's report was adopted. Delegates to Half-Yearly Meeting of Associated Branches were elected. Instructor gave an interesting address on agricultural matters generally and was thanked. Meeting closed with the National Anthem.

Sheffield P.O. SML. M. HALL,
Secretary,

ST. CATHERINE: Buxton Town.—Meeting 16th May. Fairly good attendance. The following matters arising from the minutes were dealt with: (a) Report re arrangement for selling citrus plants from demonstration plot. (2) Presentation fund for the Secretary Associated Branches. Delegates were appointed to attend meeting of St. Catherine Branches Associated. Authorized Persons gave reports and presented handcuffs and badges. Secretary was asked to invite members of Parochial Board to visit the district. A sum of 10/- was voted to be sent along with a letter of condolence to Mr. D. S. Jones, ex-President, who has been ill for nearly a year. The meeting terminated with the singing of the National Anthem.

Linstead P.O. A. B. WALTERS,
Secretary.

Sligoville.—Annual meeting, May 2nd. Present were Instructor Martin and Assistant Instructor Byles, the President, 15 other members and some visitors. Five delegates for Half-Yearly Meeting were chosen. Authorised Persons reported all correct. Report on year's work by Miss Edwards, Assistant Secretary, was adopted. The meeting djourned by the singing of "The King."

Sligoville P.O. E. B. REID,
Reporting Secretary.

Troja.—Meeting 10th May, 1934. Present: Messrs. F. A. Goodison, M.P.B., President; and 18 others. Subscriptions towards the F. R. Ricketts' presentation fund were collected. The necessity for a Justice of the Peace for the district was discussed. The Secretary was instructed to convey the information to His Honour the Custos of the parish with a view to his taking steps to make an appointment. Mr. Flemming spoke of the necessity for the appointment of a way-warden for the parochial road through Retirement. The President promised his support as a member of the Parochial Board. The question of better medical facilities for the district was dealt with and deferred for further discussion. Crops for local markets was discussed. The meeting then terminated.

Troja P.O. A. E. CHRISTIE,
Secretary.

Waterloo.—Meeting 4th May. Present: 14 members and a visitor. Explanation was made by Mr. C. Byles re road No. 26A. The election of officers and the reports of Secretary and the Treasurer were dealt with. Assistant Instructor Byles gave a short address on the care of the soil. Authorised Persons gave good reports. After the singing of the National Anthem, the meeting adjourned.

Bog Walk. N. P. OSBORNE, Secretary.

PORTLAND: Cooper's Hill. Meeting 29th May. Present: Mr. J. Meiklejohn, President, 6 other members and many visitors. Secretary reported on Social held 24th May. Non-attendance of Authorised Persons at meetings was mentioned. Decided to have another Social in September. President urged members to interest others to join and strengthen Branch. Discussion took place on ways and means of improving the Branch. Meeting ended with the singing of the National Anthem.

Fellowship P.O. J. S. DAVIS, Secretary.

Fruitful Vale.—Annual meeting 3rd May. Present: Messrs. J. M. Whiteley, President; Instructor G. R. Graham, many members and visitors. The extension of 6 miles of driving road from Grant's Gate into the Crown lands was dealt with. Mr. E. C. Wilson, Secretary and Treasurer gave his report which was adopted. The accounts showed a balance of 16/-1d. in hand. Officers elected were:— Mr. J. M. Whiteley, President; Mr. J. Fullerton, 1st Vice-President both re-elected; Mr. M. McKenzie, 2nd Vice-President; Mr. A. C. H. Gray 3rd Vice-President; Mr. E. C. Wilson re-elected Secretary and Treasurer; Mr. C. Shelton, Assistant Secretary. The meeting adjourned with the singing of the National Anthem.

Fruitful Vale P.O. E. C. WILSON, Secretary.

Fair Prospect.—Meeting 21.5.34. Present: Mr. J. C. Burke, President; Instructor Graham, Assistant Instructor Jones, 15 members and 15 visitors. Instructors were introduced and welcomed. Instructors addressed the meeting and outlined their plans for the carrying on of the work. The Instructor was asked several questions to which he suitably replied. They were heartily thanked for their very valuable discourses. Authorised Person reported no case of prædial larceny. A new member was enrolled. The Instructor made a list of holdings for his next visit. The meeting adjounred with the singing of the National Anthem.

Priestman's River P.O. M. A. BARRETT, Secretary.

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Central Portland.—Meeting 28th April. Present: All officers and a large number of members. Many important matters were dealt with, including the erection of a Central Factory in the area, improvements on the Cemetery in St. Margaret's Bay. It was also decided that at the next meeting on the 24th May, a deputation should be appointed to await on Mr. Johnson of Port Antonio, in respect to the move for the Central Factory. Secretary was instructed to invite all the influential men of the parish to attend. The meeting ended with the King.

St. Margaret's Bay P.O. S. T. YOUNG,
Secretary.

Rock Hall.—Meeting May 21. Present: Mr. Jos. W. Dunn presiding and 17 others. Resolutions relative to water supply, roads etc.. were passed. Messrs. Scott, White, Moore and Downer were nominated Authorised Persons. Two new members were enrolled. Minor matters were taken and meeting adjourned with singing of the National Anthem.

St. Margaret's Bay. L. MORGAN,
Secretary.

ST. ANDREW: Dallas and Constitution Hill.—Meeting May 4th. Present: Mr. Robert I. McInstoh presiding. Instructor Hanson, Mr. Howe, Headmaster Farm School, and a large number of members and visitors. Six new members were enrolled. Election of officers resulted as follows:—Mr. R. I. McIntosh, President; Mr. C. Headad, 1st Vice-President; Mr. J. E. Shaw, 2nd Vice-President; Mr. J. McCarthy, 3rd Vice-President. Miss J. Josephs, Treasurer; Z. Barclay, Secretary and Mr. G. Thomas Assistant Secretary; A Managing Committee was also appointed. Land settlement was discussed. Mr. Howe said that should the Department of Agriculture consent to sell the lands, the tenants would be given the first option although there could be no restriction. Mr. Howe after enquiring into the water supply, promised to make representations to the Director about the whole matter. A hearty vote of thanks was conveyed to Mr. Howe and Mr. Amiel. Messrs. G. Nix, A. Miller, G. Thomas, J. Cadwell and J. Shaw, were appointed delegates to the meeting of the Associated Branches on the 13th prox. Sundry matters were dealt with and the National Anthem brought the meeting to a close.

Dallas P.O. Z. BARCLAY,
Secretary.

Westphalia.—Meeting 26th May. Present: Mr. Azariah Campbell, President; all other officers and a large number of members and visitors. Matters of a domestic nature were dealt with then a social was successfully carried through. The National Anthem brought the meeting to a close.

Mavis Bank P.O. U. WELSH,
Secretary.

TRELAWNY: Duncans.—Meeting 15th May. Present: Mr. J. Stockhausen, President, and 6 others. There were Gramophone selections, songs by School Party, and a solo by Mrs. Benaim. Debate on two main products of Trelawny viz., Canes vs. Bananas which is of greater economic importance to the parish took place. After lengthy addresses, decision by voting was a tie of 11 each. Meeting terminated with the singing of the National Anthem.

L. V. SLOLEY,
Clark's Town P.O. Secretary.

LIVE STOCK AND POULTRY FEEDS.

FOR HOGS: Digester Tankage
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Blood Meal, Blood Flour, Bomin, Gromeal.
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"Laymore" Meat Scraps
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FERTILIZERS

For Bananas, For Citrus, For Potatoes

We specialize in the above. Please consult us for your requirements.

SWIFT CANADIAN CO., LIMITED,
KINGSTON, JAMAICA, B.W.I.

ST. MARY: Belfield.—Meeting 8.5.34. Present: Mr. P. R. Somers 1st Vice President, presiding, 6 others with Instructors L. A. Coke and C. Henderson. Prior to meeting, Instructors had demonstrations on coffee pruning, vegetable gardening and budding. Confidence was expressed in the Instructors and determination made to work these men hard, but in good faith. Authorised Persons reported "no arrest." Meeting adjourned.
Belfield P.O. MRS. R. M. SOMERS,
Secretary.

Epsom.—Annual meeting 2nd May. Present 10 members with Mr. W. Hinds, presiding Three Authorised persons reported. Acting Secretary reported on the finances of the branch. Officers were elected as follows:—Mr. W. G. Sampson, President, Merssrs. W. Hinds, A. C. Gibson and R. Morgan, 1st, 2nd and 3rd Vice Presidents, Mr. E. Allen, Treasurer, L. S. Johnson, Secretary, Mr. F. Edwards, Assistant Secretary. The meeting closed by the singing of the National Anthem.
L. S. JOHNSON,
Annotto Bay P.O. Secretary.

ST. ANN: Hiattsfield.—Annual Meeting 9th May. Present: 14 members, Instructor Atkinson and some visitors. Enquiries were made regarding the Branch's ram. The Instructor offered to take care of it for three montshs at the end of which time it would be fit for service. The members thanked him. Authorised Persons gave their reports, and instructions as to their duties were given by the Instructor. The Secretary gave his annual report and stressed the value of the services rendered by the Instructor. The President also made a report. The officers were asked to continue in their positions. The Instructor spoke of the Association of Branches of St. Ann, first meeting to be held in Brown's Town on 16th June. He hoped that delegates from this Branch would be present. Meeting terminated with the singing of the National Anthem.
Ocho Rios P.O. S. GEO. JACKSON,
Asst. Secretary.

Jefferyville.—Annual meeting April 26. Present: Messrs. C. Long, President, Instructor Mr. C. V. Atkinson, 10 other members and some visitors. Arising from the minutes, questions of Authorised Person, and proposed Social were discussed. Votes of sympathy re his illness and of appreciation of his work as Treasurer was passed to Mr. A. Braham. All the officers were re-elected. Treasurer's report was taken. Vote of thanks was accorded the Treasurer. Meeting terminated with the National Anthem.
Moneague P.O. (MISS.) O. LAWRENCE,
Reporting Secretary.

Keith:—Meeting 18th May. Present: 36 members and some visitors. Mr. H. Marshall, Vice President presided. Show at Addison Park was discussed. Correspondence was dealt with and delegates to Association of Branches appointed. Mr. D. Richards rendered a solo, Miss C. Alexander gave some humorous and witty items, and Mr. H. B. Williams and others, presented a short comic play "Three Agriculturalists." Authorised Persons reported work done. Ten new members were elected. Meeting closed with National Anthem.
Keith P.O. S. B. HAUGHTON,
Secretary.

MANCHESTER: Royal Flat—Meeting 16th May. Present: N. Nash, Esq., J.P., President, and 17 others. Mr. Culley spoke on his deep sense of the claims of Agriculture in Jamaica. The annual report of the Branch was read; discussions followed. The Treasurer reported on the funds. An Authorised Person was added. The Secretary read article on "Transplanting of Seedlings" from the Journal. This proved instructive and interesting. Citrus nursery was discussed. The Secretary was instructed to inform Instructor Darby that the plants were ready to be budded. The meeting closed with the National Anthem.
Williamsfield P.O. H. LISTER JOHNSON,
Secretary.

Pratville.—Annual Meeting 9.4.34. Present: Mr. Victor Marshall, presiding. Two new members were enrolled. Election of officers resulted as follows; President, Mr. S. R. Wesley, 1st Vice President, Mr. Wm. Page; 2nd Vice President: Mr. J. R. Swaby, 3rd Vice President, Mr. Victor Marshall; Treasurer, Mrs. L. J. Wilson; Secretary, Mr. D. E. Dixon. Discussion took place re Authorized Persons. Secretary was asked to write to them re attendance at meetings, etc. Authorised Person, R. Melvin reported on his work. The meeting adjourned.
Pratville P.O. D. E. DIXON,
Secretary.

Other Reports Received.

Branch.	Date of Meeting.	Attendance.	Business.	Secretary.
St. Mary.				
Albion Mtn. ..	3.5.34	8	Road. Authorised Persons. Address by Assistant Instructor Henderson.	J. E. Francis.
Baxters Mtn. ..	23.5.34	..	Instructors Coke and Henderson attended School Garden and instructed on holdings re Coffee.	R. J. Lawson-Ricketts.
Camberwell ..	18.5.34	9	Annual Meeting. Juvenile Branch, Local P.O. Address by Instructor Henderson.	A. E. L. Giscombe
Lucky Hill ..	15.5.34	7	Authorised Persons, Citrus, Wynne Grass	T. W. Geohaghan
Mt. Regale ..	4.5.34	..	Mosaic Disease. Pruning of Coffee and Bananas.	T. H. Hannam.
Marlborough ..	24.5.34	18	Authorised Persons. Reports of Secretary and Treasurer Election of officers. Address by Instructor Henderson.	D. Aug. Ford.
Oxford ..	15.5.34	15	Address by Mr. Carrington re Citrus	Mrs. R. A. Thomas.
Rock River ..	28.5.34	13	Marketing of Bananas. Addresses by Instructors Coke and Henderson.	J. A. Bowen.
Central St. Mary	10.5.34	..	Authorised Persons. Banana Borer.	C. C. Lee.
Wallingford ..	20.4.34	22	Social. Election of Officers. Finances.	Adina Phillips.
Wood Park ..	9.5.34	16	Saanen Ram. Foot Bridge. Insurance of Bananas. Half Yearly meeting of Parish Association, etc.	C. L. A. Stuart.
St. Catherine.				
Bellas Gate ..	16.5.34	over 60	Parochial Dispensary. Annual reports of President, Secretary and Treasurer. Election of Officers. Addressees by Instructors Martin and Byles.	A. A. McCurdy.
Content ..	23.5.34	..	Authorised Persons. Election of officers. Addresses by Instructors Martin and Byles.	G. G. Planter.
Hampshire ..	22.5.34	40	Saanen Buck. Resolutions. Authorised Persons. Addresses by Mr. F. A. Goodison and Instructors Martin and Byles.	E. A. L. Rowe.
O'Meally ..	26.4.34	19	Ricketts Presentation Fund. Coconut disease. Irish potatoes Resolutions.	S. H. Anderson
St. Johns, Upper	8.5.34	..	Ricketts Presentation Fund. Resolutions.	L. J. Donaldson.
Hanover, Windward	19.5.34	15	Seed Corn Competition. Show. Resolutions.	J. Z. Malcolm.
Portland.				
Belvedere	4.5.34	..	Annual Reports by President Secretary and Treasurer. Election of officers. Ram.	L. C. Blair.
Moore Town ..	1.5.34	..	Election of officers, etc.	R. S. Anglin.

Other Reports Received, contd.

Branch.	Date of Meeting.	Attendance.	Business.	Secretary.
Craigmill ..	1.5.34	..	Annual Reports from Secretary and Treasurer. Election of officers. Appointment of Auditors. Address by Instructor, G. R. Graham	Rev. T. Lawrence.
St. Elizabeth.				
Brompton ..	26.4.34	..	Water and road matters. Secretary's Annual report. Election of officers.	G. W. S. Wynter.
Kilmarnock ..	8.5.34	21	Nursery. Juvenile Branch. Address by Instructor Wray	J. E. Monteith.
Springfield ..	4.5.34	30	Authorised Persons. Soil *fertility*. Address by Instructor Wray. Small Stock.	J. A. Woodstock
Mocho, New Market.	9.5.34	5	Election of officers.	A. A. Walker.
Malvern ..	27.4.34	Over 30	Secretarys and Treasurer's Reports. Resolutions and Delegates re St. Elizabeth Branches Associated. Road. Election of officers. Show. Small Stock.	Miss E. I. Blake.
Trelawny.				
Bohemia ..	26.4.34	18	Road. Authorsed Persons. Address by Instructor Kelly	V. C. Robinson.
Deeside ..	1.5.34	12	Show. Cane. Giant Plantain. Yaws. Talk by Instructor Kelly.	E. A. Morle.
Ulster Spring	14.5.34		Secretary's Annual Report. Election of Officers.	I. C. Williams.
Warsop	15.5.34	19	Resolution. Address by Instructor.	U. K. Walters.
Wakefield ..	2.5.34	..	Election of officers. Show. Authorised Persons.	E. S. Bliss.
St. Andrew.				
Content Gap	19.5.34	12	Resolution re Coffee. Road.	F. A. Wilson.
Westmoreland.				
Darliston ..	20.4.34	..	Secretary's report.	A. A. McDonald.
St. Thomas.				
Hagley Gap ..	25.4.34	..	Land Settlement. Road. Medical service.	J. B. Heywood.
Clarendon.				
Mt. Providence	8.5.34	25	Tools for School Garden. Treasurer's report. Coffee Curing Competition. Authorised Person.	G. S. Neita.
St. James.				
Roehampton	12.5.34.	17	Pimento disease, Sweet potatoes, Citrus. Address by Instructor Marr. Delegates to meeting of St. James Branches Assoc.	J. A. Rhoden.
Manchester.				
New Green ..	3.5.34	17	Election of officers. Citrus. Reports from Secretary and Treasurer. Address by Instructor Darby	E. A. Grant.
Mile Gully	25.5.34		Pump Fund. Appointment of delegates to meeting of M.B.A.	T. A. Morris.

We also acknowledge receipt of reports of (a) Annual meeting from Hagley Gap, held 27.5.34 when the election of officers was carried through, (b) April meeting from Kilmarnock, (c) Annual meeting from Mile Gully, when officers were elected and appreciation of the Secretary's faithful service for 9 years was expressed and a presentation made to him. We read with interest the Secretary's Annual report from Skibo. Ed.

THE JOURNAL

OF THE

Jamaica Agricultural Society.

The more people do the more they can do; he who does nothing renders himself incapable of doing anything; while we are executing one work we are preparing ourselves for undertaking another.

Vol. XXXVIII. JULY, 1934. No. 7.

BOARD OF MANAGEMENT.

The regular monthly meeting of the Board of Management of the Jamaica Agricultural Society was held at the office of the Society, 11 North Parade, Kingston, on Wednesday the 6th June, 1934, at 11.30 a.m. There were present:—Hon. A. C. Barnes, Director of of Agriculture, *ex-officio*, Messrs. Sidney Barton, C. O. Cover, H. E. Lewis, T. P. V. McDaniel, U. Theo. McKay, D. D. Phillips, S. M. Walker, W. Harper Watson, and W. H. W. Westmorland; P. St. L. Bacquie, Supervisor of Instructors and the Secretary, Glaister Baxter.

In the absence of the Vice-Presidents, Mr. Cover on the motion of Mr. Phillips, seconded by the Director of Agriculture, was voted to the chair.

Apologies for absence.—

Apologies for absence were tendered from Mr. T. R. Williams, Major G. B. Pease and Rev. W. J. Thompson.

Confirmation of Minutes of the previous Meeting.

The Secretary stated that a copy of the Minutes had been sent to each member of the Board. They were taken as read and on the motion of the Director of Agriculture, seconded by Mr. McDaniel, were confirmed.

Matters arising out of the previous Minutes.—

(a) *Statement by Secretary* was submitted as follows:—

5th June, 1934.

Gentlemen:

As arising from Mr. Lewis' question at last meeting and reports from various Instructors, the Government Microbiologist made a study of the Pimento Disease in Manchester, and has issued a report, which has been published in the Daily Press and will appear in the May Journal.

The stud bull for St. Elizabeth was delivered to the Stud Master in that parish on Tuesday, 29th May.

Other routine correspondence resulting from the minutes have been carried through.

(Sgd.) GLAISTER BAXTER,
Secretary.

(b) *Provident Scheme: Report from Committee re letter from C.S.O.*—The Secretary stated that the letter from the C.S.O. asking for some further information regarding the Provident Scheme submitted to the Government by the Society had been submitted to the Special Committee dealing with the matter, and read the draft reply approved by that Committee.

After discussion Mr. McKay moved that the letter be forwarded to the Government with the additional information that the Committee places itself at the disposal of the Government to wait on them and explain anything on which still further information might be desired.

This was seconded by Mr. Cover and carried.

(c) *Sugar Industry: Letter from Advisory Committee*—was submitted as follows:—

Hope, Kingston,
18th May, 1934.

I am instructed by the Sugar Advisory Committee to inform you that the resolution concerning the encouragement of cane farmers in Jamaica adpoted at the recent Board Meeting of the Society, was laid on the table and discussed at the meeting of the above Committee held on the 5th, April, 1934.

The following recommendations relative to the resolution were made by the Sugar Advisory Committee:—

1. That every step be taken to encourage the cane farmer to adopt proper methods of cultivation and thereby ensure that canes of satisfactory quality be produced.

2. That it is suggested that all contracts for buying cane entered into between mill-owners and cane farmers contain a clause allowing the mill-owner to fix the date on which the farmer's cane shall be cut, this being the only means at present available by which the mill-owner can protect himself against the delivery of unripe canes.

3. That in general the growing of sugar cane be stimulated only in areas within reasonable access of a factory, the owners of which have signified that they are willing to enter into contracts for cane with cane farmers."

(Sgd.) H. H. Croucher.
Hon. Sec. Sug. Adv. Comm.

In the discussion which ensued, the Director of Agriculture, who is also a member of the Sugar Advisory Committee, stated that the essence of the whole thing was that the small farmer before embarking on cane farming should approach mill owners and ascertain what canes would be bought and then produce canes to the requirements. He was convinced that it was the desire in many districts definitely to encourage the production of sugar cane by the small farmer and he thought this should be assisted in every possible way by the Department of Science and Agriculture, the Jamaica Agricultural Society and the mill owners. If these three worked together there would be considerable change in the outlook of many people in districts where a ready money crop could be produced, subject of course, to the conditions outlined.

Mr. McKay said he thought the matter should be taken further and a man should be seconded by the Society to help to build up the cane industry in districts where Panama Disease had made great in-roads, and he knew of no areas more needing such stimulus at this juncture as one or two in Clarendon.

The letter was noted.

(e) *Banana Insurance: Report of Special Committee.*—The report of the Special Committee appointed to deal with this matter was submitted, as follows:—

To the Board of Management:
Gentlemen,

Your Special Committee appointed to consider a Banana Insurance or Provident Scheme, met at the Office of the Society on Wednesday 23rd May, 1934 at 11 a.m. There were present: Messrs. W. Harper Watson (presiding), W. H. W. Westmorland, T. P. V. McDaniel, and the Secretary, Glaister Baxter.

After considering generally the question of the desirability of Banana Insurance, and also compulsory Thrift Schemes for purposes of resuscitation of the industry after periods of calamity, your Committee considered that no recommendation should be made by the Jamaica Agricultural Society until an opportunity had been provided the agriculturists of the country, especially the smaller men (who have up to this not had the opportunity) of expressing their opinions on the matter.

Your Committee recommends that such an opportunity for discussion be provided at the next Half-Yearly General Meeting. That Branch Societies be immediately circularised on the subject and the necessary item placed on the Agenda of the Half-Yearly General Meeting.

Your Committee feels that the whole question of necessary assistance to farmers in cases of disaster is closely bound up with the larger question of adequate and permanent *agricultural credit facilities, and feel that that question might properly be fully considered* prior to any Banana Insurance or Provident Scheme.

Your Committee further considers that any Government fund authorised to assist agriculture would be much more securely invested and of wider benefit through agricultural credit organizations, than it could be through any Banana Insurance or Provident Schemes.

(Sgd. W. Harper Watson,
,, W. H. W. Westmorland,
,, T. Percy V. McDaniel
,, Glaister Baxter,
Secretary of Committee.

Mr. McKay said that he as a member of the Committee had attended at the hour fixed for the meeting and as no one turned up at the time, he had left and on his return found that the Committee had deliberated and formulated a report. He did not wish to appear ungracious but would ask that the report be not accepted by the Board in its entirety. He felt that Agricultural Credit and Banana Insurance should be considered separately and that the matter was too important to be left for discussion at the Half-Yearly General Meeting when there would not be sufficient time for the minute and careful deliberation necessary. He requested that the report be re-committed to the Committee for further consideration.

The Director of Agriculture said that the Special Government Committee of which he was Chairman was sending out a questionnaire to all organizations interested in the banana industry and this would be duly sent to the Society. He suggested that it might be wise to defer the report under consideration until the questionnaire was received by the Society.

At the request of the Chairman Mr. Cover, the Chairman of the Special Committee agreed that the whole matter be re-committed for the consideration of Banana Insurance separately from the question of Agricultural Credit.

The Committee was empowered to add to their number and the name of Mr. S. M. Walker was mentioned. The Board approved.

(f) *Further Report from Planning Committee.*—The following report was submitted:—

5th June, 1934.

To the Board of Management:

Your Committee appointed to plan the work of the Instructors, met at the Office of the Society, 11 North Parade, Kingston, on Wednesday, 30th May, 1934, at 5 p.m., and now submit further interim report for adoption:—

The zoning of five Instructoral districts were considered and are recommended and work planned as outlined below:—

Instructor McLaren's District.—

Zone 1. Upper St. David's—the region north of Ramble Bridge, then on to Cedar Valley extending to Hagley Gap and bordering on St. Andrew.

Zone 2. Central and Lower St. Davids—the region south of Ramble Bridge extending to Yallahs on to White Horses and bordering on the sea.

Zone 3. The Blue Mtn. Valley—the region beginning at Morant Bay up the Morant and White Rivers on to Cedar Valley.

Zone 4. Region south of a line drawn from Port Morant on to Bath thence to Quaw Hill and bordering on the sea.

Zone 5. Region bounded by a line rumming along the ridge from Morant Bay to Soho and bounded on the other side by line running from Port Morant to Bath.

The Committee recommends that Zone No. 2 be a zone for the Agricultural Headman's work in connection with Bombay mango propagation right away and vegetable development later. Zone 4 for coffee development; Zone 5 citrus development to be started right away. Zone 4 to include nurseries for coffee and nutmeg.

Instructor Hansor's District.—

Zone 1. Stony Hill, Mannings Hill, Red Hills to Rock Hall, Above Rocks to Glengoffe.

Zone 2. The Liguanea.

Zone 3. Area east of Junction Road over to Mt. James.

Zone 4. Newcastle area.

Zone 5. Mavis Bank area from Pleasant Hill to Arntulley.

Zone 6. Constitution Hill and Dallas area.

The Committee approved commencing work on coffee, citrus and cane on Zones 1 and 3.

The Committee approved of assigning Assistant Instructor Miller to Zones 2, 4 and 5, and that he should be centred at some point near Gordon Town, and to start work immediately in Zones 4 and 5 on potatoes, vegetables, and peas, until the fall when it is expected he will be needed on the Liguanea with respect to vegetables, tobacco and bananas.

Instructor Lynch's District.—

Zone 1. The citrus and coffee zones from Pepper to Malvern, including Santa Cruz.

Zone 2. The mango zone from Myersville to Pedro Plains including Southfield.

Zone 3. The pineapple and cashew zone from New River to Black River including Slipe and Burnt Savanna.

The Committee recommends that the Instructors operate in Zones 1 and 2 immediately; citrus and coffee in Zone 1, and mangoes in Zone 2.

Instructor Martin's District.—

Zone 1. St. Thomas -Ye-Vale area.

Zone 2. Troja area.

Zone 3. Area west and north of Linstead.

Zone 4. Harker's Hall area.

Zone 5. Lower St. Catherine area.

Zone 6. Point Hill and Marlie Hill areas.

Zone 7. Lluidas Vale—Kellits area.

The Committee decided that work on citrus, coffee and cane be started in the St. Thomas-Ye-Vale area, and when the Assistant Instructor start operations independently, that work be undertaken in the Kellits area.

Instructor Coke's District.

Zone 1. White River to Goshen area including Pembroke Hall and Oracabessa.

Zone 2. Castleton to Highgate to Windsor, Palmetto Grove and Hampstead.

Zone 3. Coastal area—Annotto Bay to Oracabessa.

Zone 4. Mountain area between Castleton and Annotto Bay.

The Committee recommends that Zones 1 and 2 be taken immediately; special work in citrus and coffee, and juvenile project at Carron Hall.

The selection of Agricultural Headmen was made and is submitted for your adoption as under:

William A. Wright for Instructor Darby's district.
Gladstone Harris for Instructor Shirley's district.
Rupert Grant for Instructor McLaren's district.

The Committee agreed that these men be paid 4/- per day with minimum work of days per week. That their assignment and control be left to the Secretary and Supervisor. It was also decided that the results of work by these men be carefully checked at the end of three months operations.

Submission of juvenile project in connection with the Carron Hall Branch from Instructor Coke, was considered and is recommended for your approval.

Suggestion from the Accountant for exhibition of well packed boxes of citrus and first class samples of Virginia tobacco at the Half-Yearly General Meeting is commended for your adoption.

The establishment of a Bombay mango propagation plot at Fullerswood Park in St. Elizabeth, the property of the Hon. P. W. Sangster, is recommended for your approval.

An offer made by the Hon. P. W. Sangster to finance a peanut trial plot on condition that it be under the supervision of our Instructoral staff and that it be not less than half an acre, was considered and is recommended for your adoption.

(Sgd.) GLAISTER BAXTER,
Secretary of Committee.

The Director of Agriculture moved that the report be adopted.

This was seconded by Mr. McDaniel and after a short discussion, carried.

On the motion of the Director (on behalf of the Hon. T. J. Cawley) Mr. McKay was added to the personnel of the Committee.

Statement of Accounts.—

(a) *Statement for April* printed in the Minutes, was presented and tabled.

(b) *Statement for May* was submitted as follows:—

STATEMENT OF ACCOUNTS FOR MAY, 1934.

Receipts.	Estimates. £ s. d.	Total. £ s. d.
To Subscriptions	175 0 0	41 7 11
Affiliation and Journal Fees	175 0 0	27 8 6
Advertisements in Journal	200 0 0	14 2 6
Bank Interest and Sundries	10 0 0	2 8 9
Miscellaneous	10 0 0	..
Bee Industry Sales	30 0 0	13 4 11
Sales Department Profits	400 0 0	..
Government Grant	1,500 0 0	1,583 6 8
Grant for Beekeeping Industry ..	500 0 0	..
Appropriation of Sales Department Profits	516 15 0	..
	£11,516 15 0	£1,681 19 3
Balance from 31st March, 1934 ..	..	1,877 4 8
Nethersole Presentation Fund ..	..	0 2 0
Entrance Fees to Holdings Competitions ..	..	3 7 0
Refunds of Advances	..	108 10 0
Seeds Trading Account	..	756 4 3
		£4,427 7 2
Less Expenditure per Contra ..	..	3,448 9 4
Balance	..	£978 17 10
Cash in hand	£11 18 11	
Cash at Barclay's Bank, Current A/c ..	728 13 0	
Cash at Royal Bank of Canada Current A/c	238 5 11	978 17 10

When corresponding with Advertisers, mention the Journal of the

JAMAICA AGRICULTURAL SOCIETY.

Expenditure.	Estimates. £	s.	d.	Total. £	s.	d.
By Personal Emoluments—						
Secretary and Office Staff	2,014	5	0	325	5	0
Instructors and Supervisor	7,482	10	0	1,414	7	6
Instructors' Course at Hope	125	0	0			
Instructors' Contingencies	100	0	0	20	5	1
Secretary's, Office, and Special Travelling	100	0	0	20	9	2
Printing and Stationery	100	0	0	31	7	7
Rent and Rates	58	0	0	9	2	5
Rent of Telephones	27	0	0	4	10	8
Postages and Telephones	10	0	0	2	13	2
Office Furniture: Repairs	15	0	0			
Incidentals	50	0	0	11	13	6
Auditors Fees	25	0	0	25	0	0
Library Books	10	0	0	1	1	8
Experiments and Livestock Subsidies ..	100	0	0	6	7	10
Show Equipment: Repairs and Maintenance	10	0	0	2	7	0
Printing and issuing Journals and Reports	750	0	0	7	11	2
	£10,976	15	0	£1,882	1	9
Beekeeping Industry	500	0	0	105	3	0
New Office Equipment	40	0	0			
	£11,516	15	0			
Gratuity	..			14	0	0
Advances to Instructors	.			435	0	0
Nethersole Presentation Fund .	..			9	0	0
Holdings Competitions ..	..			143	19	8
Plant Diseases Control	..			10	17	5
Seeds Trading Account ..	..			848	7	6
				£3,448	9	4

(c) *Audited Annual Statement.*—The Audited Financial Statement for year ending 31.3.34 was presented and the Auditor's Report read.

Appreciation was expressed of the work done by the officers of the Society with special regard to the Seeds Department.

There was a discussion on the matter of the balance in hand from the Government Grant for Relief in Storm Stricken Areas, and on the motion of Mr. McKay, seconded by Mr. Barton, it was decided that the amount be forwarded to the Government.

On the motion of Mr. Walker, seconded by Mr. Westmorland, the Audited Statement was adopted.

Questions.—

Mr. Lewis asked if there was any agricultural literature other than the Journal available to members of the Society.

The Secretary explained that there was an agricultural library with many text books and there were also periodicals available. He had published lists of these in two issues of the Journal advising that books were available to members on loan, and he would endeavour to reprint this.

Notices of Motions.—

Mr. McKay gave notice that at the next meeting he would move the following:—

"There shall be a Planning Committee for the purpose of planning the work of Instructors and the organization of Instructoral Districts, consisting of five Members of the Board of Management, three to form a quorum.

The Committee shall appoint its own Chairman, and shall report from time to tin to the Board of Management. It shall be empowered to give effect to its recommend: tions after approval by the Board of Management.''

Office.

(a) *Secretary's Report on Travelling.*—The Secretary reported o travelling done by him during May for the information of the Boar(

(b) *Appointment of Auditor.*—On the motion of Mr. McKay, seconde by Mr. McDaniel, Mr. R. Parkinson was appointed Auditor for on year as from June 1st, 1934.

Instructors.—

(a) *Report of May meeting of Committee.*—The following report wa presented and taken as read:—

6th June, 1934.

To the Board of Management:

Gentlemen:

Your Instructors' Committee sat on Wednesday 2nd May, 1934, at 10 a.m., an recommend for your adoption:

That a request from Mr. M. H. Segre for regular and special services of Instructor J. / Graham outside of his district be not granted.

All other matters considered by the Committee have already been reported on, by tl suspension of the standing orders at your last meeting.

(Sgd.) GLAISTER BAXTER, Secretary of Committee.

The report was adopted.

On the motion of the Chairman, seconded by Mr. McKay, th standing orders were suspended to enable certain recommendatior of the Instructors' Committee which sat that morning to be considere. The following report was presented:

To the Board of Management:

Gentlemen,

Your Instructors Committee sat this morning and beg to recommend the following:- (i) That the tools in Mr. Wates' possession be sold to him for the nominal sum of te shillings. (ii) That a small Committee be appointed to enquire into the circumstance surrounding the potato blight in Manchester, and find out if there was any fault on tl part of the field staff of the Society for not reporting the disease earlier. (iii) Th Instructor Robotham be paid £3 6s. 8d. for extra travelling during his leave in counectio with potato and pimento blight in his district. (iv) That funds now being availabl Instructors Darby and Robotham be paid their increments of £20 each per annum a from 1st April, 1934. (v) That the Secretary be authorised to give permission to Instru tors who wish to apply for the post of Inspector of Produce. (vi) That one month leave as applied for by Instructor Hanson be referred to the Secretary to be arranged fo (vii) That affiliation be granted to the following Societies:—

Maidstone (Portland).
Lethe (Hanover)
Retirement (St. Elizabeth).

(Sgd.) GLAISTER BAXTER, Secretary of Committee.

Considerable discussion ensued on the subject of the Potato Bligh in Manchester, during which the Secretary stated that the Microbiologis in his report pointed out that if report had reached him earlier muc of the potato crop might have been saved, and it was with the objec of clearing up this point that the Instructors' Committee had made th recommendation. The Secretary on request read correspondenc from the Microbiologist, Instructor Thompson, Supervisor Bacqui and himself on the matter.

With regard to recommendation (ii) the Chairman named Messrs Cawley, McKay, Phillips and McDaniel to serve on the Committee

Mr. McKay said he would not serve and he did not think it wa necessary for a Committee to be appointed. The Supervisor shoul be instructed to carry out the investigation.

The Chairman requested that the members vote as to whether Committee should be formed or that the Supervisor be instructed t carry out the investigation.

The voting decided that the investigation should be carried out by the Supervisor.

On the motion of Mr. McDaniel, seconded by the Chairman, the report as modified by the motion, was adopted.

Mr. Phillips asked that definite instructions be given that other parts of the parish be given immediate supervision.

The meeting adjourned for the luncheon interval.

On the resumption there were present:—Messrs. C. O. Cover (Chairman), Hon. A. C. Barnes, Messrs. McDaniel, McKay and Westmoreland; the Supervisor of Instructors and the Secretary.

Communications.—

(a) *Letter from Public Works Department re valuation of lands.*—Letter was submitted from the Public Works Department stating that in acquiring lands for main road purposes they often experienced difficulty in the matter of valuation and requesting that instructions should be issued to Agricultural Instructors to assist the Department in the matter.

The Secretary was instructed to reply that whilst the Board was in sympathy, in view of the fact that there was the risk in services of this kind bringing the Instructors into conflict with the people they serve, it was regretted that they were unable to grant the request.

(b) *Letter from C. S. O. re appointment of Secretary as member of Committee re Tobacco Industry.*—Letter No. 2356/34 of date 26th May, from the Colonial Secretary, stating that the Officer Administering the Government proposed to appoint a Committee to enquire into and report on the Tobacco Industry in Jamaica and inviting the Secretary to serve on the Committee, was read.

The Secretary stated that he had replied stating that he would be willing to serve after receiving the formal consent of the Board.

The Board gave the necessary consent.

Mr. Phillips joined the meeting.

(c) *Memo from Secretary re additions to Schedule A of Law 4 of 1909.*—Secretary submitted a covering letter from the Director of Agriculture stating that the Government has under consideration the amending of the Schedule referred to but before amending the Law the Government would like to be informed if there are any other items which it might be desirable to have added.

The Secretary was instructed to submit this matter to the Branch Societies for their views.

(d) *Letter from Instructor Thompson re Vegetable Seeds.*—Letter was submitted from Instructor Thompson, suggesting that directions for sowing, etc., might be printed on the seed packets.

The Board decided to refer this to the Planning Committee.

(e) *Letter No. 6050/32 of date 1st May from the C.S.O. covering copy of report by Mr. F. A. Stockdale, C.M.G., C.B.E.,* Agricultural Adviser to the Secretary of State for the Colonies, on his visit to the West Indies in 1933, was submitted, and the Secretary stated that he would be publishing extracts from the report.

The Board approved.

(f) *Invitation from St. Andrew Branches Associated to their Half-Yearly Meeting on the 13th June,* was noted.

(g) *Resolution from Portland Parochial Board to Government.*—Letter was submitted from the Clerk of the Parochial Parochial Board covering a resolution from that Board to the Government on the subject of the urgent need for some definite agricultural policy with the view

to fostering certain crops to improve the economic condition of the agriculturists of the parish, and asking that if possible an expert be sent to that section.

The Director of Agriculture stated that the resolution was being dealt with by the Government. He suggested that Mr. Harper Watson, the member of the Board in that section, Mr. Sutherland, Mr. Carrington and Messrs. Graham and Jones, Instructors, should get together and evolve a definite scheme which could be submitted to the Planning Committee.

The suggestion was adopted.

(h) *Request from Brown's Hall Branch for further grant.*—Letter from the Secretary of the Brown's Hall Branch, thanking the Board for the 25lb. seed potatoes given for the juvenile agriculturists and asking for a further grant of £2 towards expenses for fencing an experimental plot for the growing of late vegetables, was submitted.

On the motion of Mr. McKay, seconded by Mr. McDaniel, the amount was granted, the Instructors in that section to see that the money was correctly spent.

Half-Yearly General Meeting.—

The Secretary stated that the date for the Half-Yearly General Meeting would be Thursday, 26th July, next, commencing at 10 a.m. He proposed to obtain the use of the Collegiate Hall.

The Board approved.

Diseases of Plants and Animals: Insect Pests.—

(a) *Panama Disease of Bananas—Monthly Report.*—The Summary of cases of Panama Disease of Bananas for April, 1934, was presented and the Secretary stated that copies had been forwarded to the members of the Board.

Industries.—

(a) *Beekeeping: Report of Committee.*—The following report from the Bee Industry Committee was submitted:—

6th June, 1934.

To the Board of Management.

Your Bee Industry Committee met on 2nd May, 1934, at 9 a.m. and recommend for adoption the following:—

1. The draft regulations submitted by the Produce Advisory Board with respect to honey and wax were considered. The proposed regulations require 14 days' notice to the Inspector previous to the delivery of the honey and that it has been subsided, was considered too long, and your Committee is of opinion that this period should be changed to 5 days.

2. Regulation regarding location where honey should be inspected was considered, and it is recommended that honey should be open for inspection either at the apiary or warehouse.

3. The draft regulations as attached to this report other than the changes suggested are recommended by the Committee for your adoption.

4. Two weeks sick leave on doctor's certificate was granted to Instructor Coote.

(Sgd.) GLAISTER BAXTER,
Secretary of Committee.

On the motion of Mr. Phillips, seconded by Mr. Westmorland, the report was adopted.

Competitions.—

(a) *Report on judging Macca Tree Juvenile Vegetable Competition.*—A full report from Instructor Martin was submitted and the Secretary stated that this would be published in the Journal.

The Board approved.

(b) *Distribution of Prizes in Mr. Wray's district.*—Report was submitted from the Supervisor stating that Hon. A. E. Harrison, Custos of St. Elizabeth, had kindly distributed the prizes in connection with the Holdings Improvement Competition in Western St. Elizabeth, on the 26th May.

This was noted.

Branches, Resolutions. etc.—

(a) *Resolutions from Hampshire Branch* were dealt with as follows:—(i) Information that resolution re appointment of a Justice of the Peace had been sent to the Custos of the parish, was noted. (ii) The Branch's expression of appreciation of the efforts made by the Society in the interests of State Agricultural Credit, and the high standard of the Journal, were noted.

(b) *Resolution from Beckford Kraal* suggesting that the cost of the upkeep of telephone stations be pooled and divided instead of each station bearing its cost, was submitted, and the Secretary instructed to forward same to the Postmaster.

Resolution from Fruitful Vale asking certain clemency re nurses without certificates, was submitted. The Board decided not to intervene in this matter as there was a Law which dealt with it.

Resolution from the same Branch asking that *Police protection be granted for Food Depots in Kingston,* was submitted and the Secretary was *instructed to forward same to the Inspector General of Police.*

Resolutions from Rock Hall (Portland) were submitted stating:—(i) That residents in that district had pledged £250 in free labour in the construction of a driving road into the district and wished to start the work immediately. (ii) Owing to the existing unsatisfactory conditions of the water supply it was desirable to have a tank constructed.

The Secretary was instructed to forward both resolutions to the Parochial Board.

(c) Another resolution from the same Branch asked for monthly visits of the Instructor, and the Board decided that the Instructor should visit the Branch as often as possible.

(e) *Bull Savannah relocation of Bombay Mango Plot.*—This Branch asked that the location of the site for the Mango Plot as proposed by the Planning Committee, be changed.

The Secretary was instructed to inform the Branch that it was not necessary to change the location; as soon as the Society could arrange steps would be taken to establish another plot in their section.

(f) *Record of gratitude of the Alps Branch* to the Society for its efforts at aiding the needs of sufferers during the storms of 1933, was received and noted.

New Members.—

On the motion of the Chairman, seconded by Mr. Phillips the following were unanimously elected members of the Society:—

G. F. Phillips, Williamsfield.

Mrs. J. L. Ramson, 82 Duke Street, Kingston.

C. C. Michelin, Serge Island Estate, Seaforth.

G. N. Penso, Penso's Garage and Auto Supplies, 88-92 Orange Street, Kingston.

J. W. Hutton, c/o D. Henderson & Co., Ltd., Kingston.

S. L. Farquharson, c/o Banana Producers' Association, Port Morant.

Allan A. Archer, c/o United Fruit Co., Kingston.

Daniel Lyn, Walderston.
R. J. Stone, Revenue Dept., Kingston.
J. L. Elliott, Heathfield, Race Course.
Monsieur Rene de Meillac, Marigot, Martinique.
Lionel Densham, Longhill, Santa Cruz.
Oscar F. Townsend, Four Paths.
L. E. Tingling, Oracabessa.
Mrs. Mary Slinger, Diamond Bungalow, St. Mark's, Grenada, B.W.I.
Dr. E. R. Fulford, 48 Duke Street, Kingston.
Wm. H. Mitchell, "Mynton," Brown's Town.
L. A. M. Robertson, Serge Island Estate, Seaforth.

Other Business.—

(a) *Resolution from Lowe River Branch,* requesting that as the telephone wire between Coleyville and Lorimers has been installed, a a telephone should be put in as soon as possible, was referred to the Secretary to be sent to the Postmaster.

(b) *Resolution from Roehampton Branch* asking that the Government take steps to purchase "Roehampton" for land settlement purposes was submitted, and the Secretary instructed to forward same to the Government.

Resolution re the marketing of peas and corn was submitted from the Springfield (St. James) Branch and tabled.

(c) *Resolution from the N. W. St. James Branch,* asking that the Government be requested to purchase "Anchovy" for land settlement purposes, was submitted and the Secretary instructed to forward same to the Government.

(d) *Report from Mr. Phillips re Comfort Hall Branch.*—Mr. Phillips reported that as requested by the Board he had interviewed Canon Evelyn with a view to having his approval of meetings of the Comfort Branch being held in the schoolroom. He had not however been able to secure Mr. Evelyn's consent as Canon Evelyn said the President of the Branch and the teachers have repeatedly had differences and seemed unable to co-operate.

(e) *Report from Supervisor Bacquie* on a successful Horticultural Show held on the 24th May in Mandeville, Manchester, was submitted and noted.

(f) *Letter from the Director of Agriculture* regarding the services of Mr. J. M. McEwen to the Department of Agriculture and the Agricultural Society and stating that he would take up work on the 5th June was submited and noted.

(g) Letter of thanks from the Macca Tree Branch for the grant of One Guinea to their Juvenile Section, was noted.

(h) *Application from Hon. C. A. Reid* for the loan of Marquees and Tent covers in connection with a fair to be held at Christiana in August to provide funds for a Town Hall, was submitted.

Mr. Phillips said that articles should be hired on the usual terms.

Mr. Westmorland suggested that half the usual charge should be made.

The voting on the matter resulted in two members for and two against. The Chairman gave his casting vote in favour of hirage at half charge and the motion was carried.

The meeting then adjourned to Wednesday 4th July, 1934, at 11.30 a.m.

CHARLEY'S

FINEST OLD JAMAICA RUM

DISTILLED AND BOTTLED

ENTIRELY BY OURSELVES

"Royal Reserve"
(15 yr. old Liqueur Rum)

"V. S. O."

"White Label"

"Red Label"

Ready-mixed
"Planter's Punch"

CHARLEY'S Finest Old Jamaica Rum is a "CHARLEY" product from the sugar cane to the bottle. The finest cane from our OWN estates is distilled in our OWN distillery, then stored for years and years in Government warehouses under the watchful eyes of expert blenders, till it reaches that state of maturity and quality which has made the name "CHARLEY" foremost in the Rum world. There is no finer tonic or beverage than Rum distilled and bottled by us

EDWIN CHARLEY

DISTILLERS AND BOTTLERS

KING STREET - - KINGSTON

A LECTURE ON PESTS OF BANANA IN JAMAICA.

By W. H. Edwards, D.I.C., F.E.S.,
Government Entomologist, Jamaica.

(*Continued from the April issue.*)

Control.

Before entering into details as to how to control the pest, I would like to explain to you what is meant by 'economic control' with reference to insect pests.

Under normal conditions most plants can sustain a certain amount of mechanical injury without material damage resulting. Slight infestation of plants with leaf-eating caterpillars, with root-eating grubs or even with insects like the Banana Borer, may not materially r duce the crop if the plant infested is a fast growing one and is at the time of he attack in a vigorous condition of health.

This, unfortunately, cannot, and I have to emphasize it, be taken as an axiom applicable in the case of all insect pests. For instance, a single cane borer, attacking a single node of a sugar cane does actual and commensurable damage. It destroys part of the marketable product and furthermore sets up fermentation that increases the losses. It can therefore be said that in that case losses will be sustained until the last individual cane borer has been destroyed.

With bananas, new tissues are rapidly and continually formed; the pest only causes mechanical damage by boring in the tissues of the corm and does not spoil the appearance of the marketable prodiuct. The amount of tissue destroyed by a few insects can furthermore be rapidly outweighed by that which is continually built up by the plant., The flow of sap from the roots to the aerial parts of the plants is then not hindered and the formation of fruits remains unaffected.

This does not imply that it is not necessary to apply control measures in cases of slight infestation, as whenever the insect is allowed to multiply unhampered it causes serious damage.

What I desire to emphasize is that with the Banana Border in comparison with other agricultural pests 'economic control' is relatively easily achieved by merely preventing the past to reproduce itself in destructive numbers.

All our efforts should therefore tend towards that easy goal and I have to ask you to forget for the present the unachievable aim of completely eradicating the pest.

Prevention of Infestation.

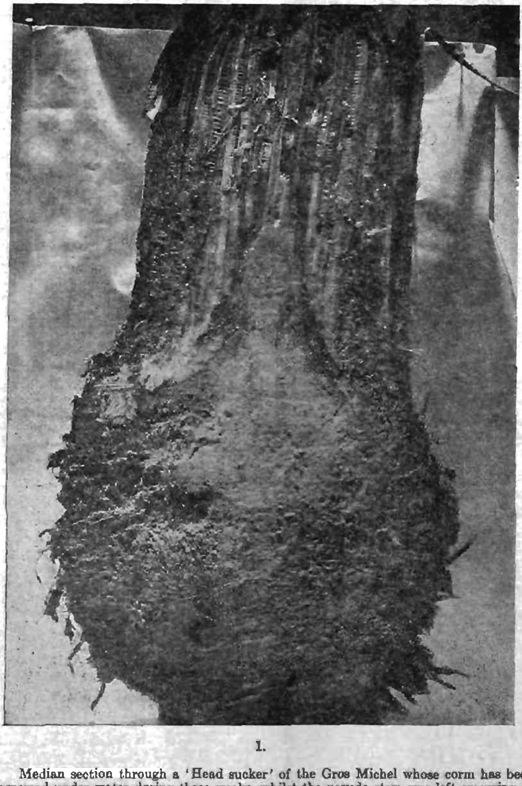
When making new plantations use only uninfested suckers. These should be procured from uninfested fields or where this is not possible from the least infested fields available.

Treatment of infested suckers by means of insecticides should not, for the reasons already given, be considered, at least, for the present.

The destruction of the insect by immersing infested suckers under water during long periods has not given me encouraging results. Even when long parts of the pseudo stems were left emerging to ensure the respiration of the plant, the Gros Michel has proved so susceptible to prolonged immersion that during the large scale experiments I have conducted in that connection the plants were always seriously damaged before the infesting larvae were killed. See Illustration 1, 2 and 3.

As you all know, the Gros Michel is very susceptible to prolonged

immersion of its roots and corms in water and plantations which become accidentally flooded very soon assume the well known 'water soaked' appearance.



1.

Median section through a 'Head sucker' of the Gros Michel whose corm has been immersed under water during three weeks, whilst the pseudo stem was left emerging to ensure respiration.

Note the advanced state of decomposition of the tissues, especially around the borer's tunnels.

Such prolonged immersion which is essential to ensure the destruction of the infestings borers is practiced in certain countries.

Treatment of infested suckers in that way has not given satisfactory results in Jamaica and for various reasons is not recommended by the author.

Even if we were dealing with a more resistant variety of banana I do not think that the method could be applied on any extensive scale in Jamaica on account of the economic questions involved chiefly by the broken nature of the land, difficulty of transportation, etc.

The danger of spreading Panama Disease by immersing large numbers of suckers at a time whether in pools or in rivers is also a factor of very great importance which renders the application of such a method unsafe in this colony.

On account of the difficulties involved by curative treatment I will therefore ask you when making new plantations not to attempt to treat infested suckers but to focus your attention on the selection of strong, healthy and as far as possible, uninfested suckers.

When the field from which the suckers will be taken has been chosen arrange (1) to dig one day what can be planted the next.

(2) As soon as the sets have been dug they should be examined by cutting a thin slice off the sides without damaging the eyes and searching whether there are any traces of the pest's tunnels in the tissues.

(3) Clean the suckers as much as possible of all rotting sheaths, etc., before they are transported.

(4) After the suckers have been thus cleaned and examined they should be immediately removed to their final destination.

(5) On no account the suckers should be left overnight near infested fields.

(6) If the suckers are transported by cart or by truck, make sure that the rubbish used as packing material between the suckers is not taken from infested fields and on reaching destination have all such material immediately burned.

Remedial Measures.

The fact that the insect when within the internal tissues of the plant is well protected from external agencies, renders treatment by means of insecticides, etc., very difficult during the major part of the insect's life cycle.

The more rational line of attack is the destruction of adult weevils which being outside the plants are more vulnerable than the grubs. As the weevils lay the eggs which produce new generations, it must be borne in mind that the destruction of a single female prevents infestation of the plants by several larvae.

The methods for control underlined hereunder may not give as spectacular results as is sometimes obtained when insect pests are destroyed with insecticides; they have, however, when applied systematically, always proved very effective and even in the worst cases of neglected infestation, very economical, once the pest population has been reduced within reasonable limits.

Hand collecting adult insects on an intensive scale as a means of control is employed in other countries not only against the Banana Borer but against several other agricultural pests.

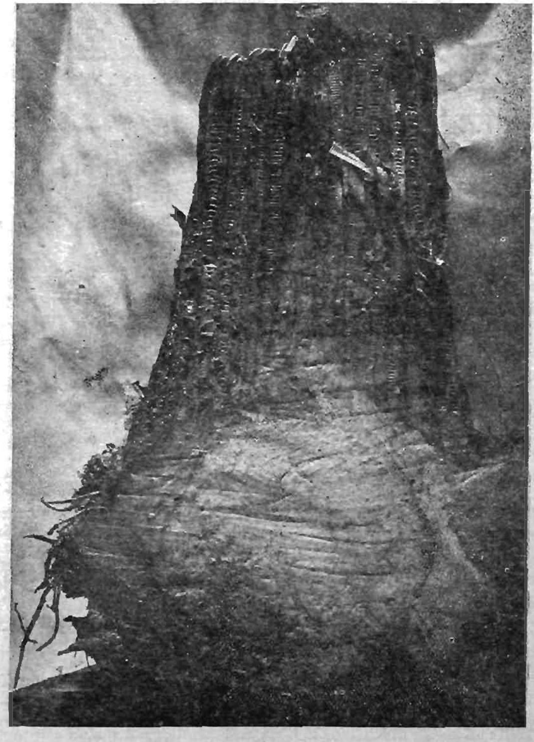
One should not believe that because it does not necessitate the use of complicated apparatus or of chemicals that it is a primitive and rudimentary method of insect control.

With an insect, which like the Banana Borer, does not migrate to any noticeable extent and in which case each locality maintains its own population of insects, hand collection if carried on a sufficiently large scale and with perseverance is bound to give satisfactory results. The

fact that the beetles can be attracted in numbers on suitable baits considerably facilitates such an undertaking and renders it relatively economical.

CONTROL OF THE BORER IN RATOON FIELDS.

So that the insect would not multiply in destructive numbers in the fields, it is essential that the tissues of all stems from which bunches have been reaped should be rendered unsuitable for the breeding or barbouring the pest.



2.

Younger sucker treated as 1.
Putrefaction has here affected half of the tissues of the corm. Note the darker appear-

This can be easily achieved by cutting all such stems in sufficiently short pieces so that they would completely decompose within three weeks to one month. When stems are cut into sections about 18 inches to 2 feet long and such pieces are split into two halves in a longitudinal direction, the enrolled leaf sheaths will separate readily from one another thus presenting a maximum surface to the action of rain and sun. See Plate II, Fig. I.

By making the first transversal cuts in a slanting direction with regards to the axis of the stem it will be found that the leaf sheaths separate very readily. They should be immediately spread over the ground and buried when the fields are ploughed or forked.

As a rule spent stems should be cut as close to the ground as possible thus leaving a minimum of decaying plant material to attract the pest. When heavy infestations have to be controlled, it is advisable to cut the spent stems six inches above the ground level always destroying the severed part as explained above. Then immediately sever the *remaining portion as close to the ground as possible and dust thoroughly* the surface of the corm as well as the cut surfaces of the six inch portion of spent stem with Paris Green and replace it on the corm so that two dusted surfaces lie together.

In certain districts it is usual to leave the spent stems standing to 'feed' suckers. Whenever this is practised the stems should never be allowed to rot in situ as is generally done. See illustration No. 7. They should be shortened periodically by the higher portions which start to rot, such sections being immediately disposed of as explained above.

When 'repairing,' etc., all corms dug from the stools should be sliced into pieces not exceeding 1 inch in thickness. By removing and destroying as much of the older tissues as is possible without injuring the younger shoots, you also in cases of heavy infestation destroy many grubs that from the old buts tunnel towards the new suckers. See Plate II, Fig. II.

Always cover any cut part of the corm with as much soil as possible and press it hard. Never leave the corms and roots to grow exposed over the soil as is often noticed in those plots which are so old that no one remembers when they were planted. Bank up the soil around the crown of the stems and do not leave the root origins exposed and in infested localities do not place plant refuse over or close to the stools, bury this between the rows. See Illustrations 6, 7, 8 and 9.

Trapping as a Method for Mass Destruction.

The capture of the weevils as is frequently seen done by labourers who are sent to search the insects amongst heaps of plant refuse left lying over the ground and amongst the old leaf sheaths at the basal part of the stems, is a comparatively costly undertaking, the premium per hundred of beetles collected having to be relatively high to induce the labourers to undertake the work.

The explanation given by many planters for this tedious and costly method of capturing the weevils, is that they find that the Borers are not attracted by the traps they have tried.

As a rule you will find that the main reason for this is that the traps were placed in fields over-run with weeds amongst which was an abundance of cut banana stems which afforded ideal shelter and abundance of food for the pest. See Illustration No. 7.

It is obvious that the pest will not collect in numbers under the traps if they find similar shelter and food all over the fields. Trapping therefore, to be effective should be an adjunct to clean cultivation.

Traps under which the pest will be collected in numbers, can be mad by placing over the ground, between the rows of stools and not clos to the stools, portions of banana corms or of pseudo stems cut int fairly large pieces, the cut surfaces of larger area being turned toward the ground.

When using pesudo stems the 18 inches next to the ground shoul be perferred, this portion is split longitudinally into two halves. Th traps should always be of fairly large size and the cut surfaces of larges area turned over the ground.

It is also always advisable to cover the traps with trash, this not onl hinders desiccation but also makes the immediate vicinity darker, condition preferred by the beetles.

Each trap should be inspected at least twice a week, this is done b removing the cover of trash and shaking it over the collecting tin the baits are then turned over gently to avoid that the beetles clingin to it fall on the ground and escape. The insects on the baits and in th soil on which it rested should be placed in deep collecting tins and no in old gunny bags or in flat wooden boxes from which they can easil escape. Old kerosene tins can be conveniently used for that purpose

Traps which having been used a few days begin to rot will be foun to attract the beetles more readily than freshly cut ones. The sam baits, however, should never be used for more than three weeks or month so as to avoid the risk of having the larvae which may infest then developing into adults. Old traps should be cut into small pieces an replaced by fresh ones.

When a trap has been inspected, replace it in the same situation a it rested. As far as feasible, employ the same collectors in the sam fields; attempt to train a gang of collectors however small it is, and i you are trying the method for the first time, apply it at first systemati cally on a small area instead of undertaking more than you can do well I am certain that the results will soon convince you to extend you activity in that direction.

Never use more traps than can be regularly examined; it unfortunatel too frequently happens that adequate supervision is not given to th application of that method of control and that the large pieces of tissu left to rot in the fields serve to breed the pest instead of having helpe to control it.

Have a trapping day for each plot and organise the work systemati cally whilst giving a reasonable amount of supervision to its execution

The main reasons why trapping has been abandoned after a shor trial on certain estates are that it was undertaken in fields where th pest found an abundance of food and shelter all around the traps whicl under those conditions did not attract many individuals, and also, a it has been frequently said, because the collectors sold to the estate beetles collected on other properties and in areas which have beer abandoned on account of a high incidence of Panama Disease. I an certain that you realize that those failures cannot be ascribed to intrinsi defects in the method itself and that this state of affairs can be remedie by adequate supervision.

Results of Survey.

To find out with exactitude the causes which under local condition are responsible for the Borer infestation observed in certain localities I have conducted a detailed survey over a large banana area. Th total area of the properties visited amounts to over 20,000 acres of which 3,525 acres are under cultivation in bananas.

To facilitate and systematize the collection of information whilst inspecting banana plantations, I prepared a questionary of which I would like you to keep copies. (Appendix I).

By reading those questionaries you will understand how you should study the different aspects of the situation before drawing conclusions.

By answering them you may find by yourself where mistakes may be easily made in the application of measures aimed at controlling the pest.

3.

'Sword Sucker' treated as 1 and 2.

Sword suckers are more resistant to prolonged immersion than the 'head suckers' generally used as planting material in Jamaica.

The tissues on the underside of the corm have however, started to rot and this during the experiments have been found to ultimately affect the normal growth of the young shoots during their early development.

I have already explained to you at the beginning of this lecture the reasons which have caused periodical increases in the pest population in certain districts.

I will now ask you to study the forms (see specimen as Appendix page 17) on which has been recorded the data given by the owners and manager of each plantation visited during the survey.

You will thus find that wherever infestation has been reported as being on the increase the history of the field clearly reveals why. You will notice that in cases of severe infestation no preventative or curative measures of control had been applied, that field hygiene was inadequate or, what is more interesting as it does not denote a state of apathy and because constructive work can there be done by the planters' advisers, that when attempts were made at controlling the pest the beneficial effects which one would be entitled to expect were annihilated by the mistakes done in the technique of their application.

Amongst such mistakes which I have frequently observed, I will call your attention to the following:—

In connection with inspection or transportation of planting material:

Suckers obtained from iufested fields are frequently transported wholesale to the new fields where they are subsequently inspected; the infested corms which are then rejected being left to rot along the edge of the fields or cut into large pieces which are spread over the ground near the planted suckers.

Great pain is also sometimes taken to choose clean suckers from *infested fields but they are subsequently left on such fields during several* days before they are transported to the new fields, during that period they act as baits on which the Borers lay eggs. Such suckers now containing eggs are sometimes reinspected before they are planted, this naturally does not reveal those eggs which ultimately cause an infestation which puzzles and despairs the grower who immediately accuses the pest of having flown into his fields from distant plantations.

The whole inspection work carried under such conditions merely serves to retard infestation but cannot prevent it.

I have also seen carefully selected suckers ultimately transported in carts packed to prevent mechanical injury during transport, between layers of infested trash and plant detritus. On reaching its destination the whole load is generally dumped on the side of the uninfested fields until the suckers are planted.

It also happens that new plantations are made between rows of old infested stools left standing to provide suckers for refills. Such suckers are sometimes carefully inspected before they are planted in infested soil and in the immediate vicinity of highly infested old corms.

With reference to ratoons, field sanitation is frequently lacking to a shocking extent and failure of the trapping method can be as a rule directly ascribed to this factor.

In this country the pest is chiefly disseminated through the lack of attention given to the choice of the sets when plantations are made. Infested suckers are commonly taken and planted in uninfested fields.

In the past, transport of the infested trash as packing material between bunches of fruits or suckers has resulted in that the vicinity of all railway stations in banana districts and of several buying depots had become foci of infestation from which the pest has since many years started to spread.

When 'thrown out' fields are not immediately replanted it too often happens that insufficient care is given to the destruction of breeding

materials as afforded to the pest by the entire or parts of the corms which are left to grow amongst rank vegetation.

It is a common practice to turn cattle on such lands and it is then argued that they destroy the bananas. You all realize that though they ultimately destroy the plants by eating the aerial parts, the corms in which the Borer breeds survive during long periods.

There is no need for me to empahasize the important role that under such conditions a natural enemy of the Borer that would attack the pest in its haunts which it is not always easy for humans to detect amongst rank vegetation, would have. As however, we have not yet that desired ally you should never throw out a field without previously destroying completely all corms of banana plants.

The reasons for leaving banana plants over abandoned fields are numerous. Some time ago I visited a large banana property where the percentage of 'refills' in newly planted fields of large areas had been reported to have been as high as 30%; most of that damage was attributed to the Borer which, in fact, was found present in large numbers.

When I asked the history of the field, I was shown the Estate books where it was recorded that no bananas had been grown thereon during the last four years. The overseer told me that he was very disappointed to see that his hopes of destroying the Borer during that period had thus been frustrated.

By continuing my enquiries I found that the overseer had forgotten to report an important fact which explained the situation. When the field was rubbed off the Estate books, the overseer found that a fair number of the plants might, even when left uncultivated, still yield bunches that could be reaped and conveniently credited to the account of the cultivated fields. After the plants had thus been left during two years, cattle was finally turned in for the balance of the time until the new suckers were planted. Are you surprised at the results and is there any reason to believe those who say that they have noticed that the Borer can in grass lands remain without food for over four or five years?

Limitations and Difficulties of Application of the Control Measures mentioned above under conditions existing in several Districts in Jamaica, and the Desirability of establishing Biological Control.

Though there is every reason to believe that in Jamaica the pest will be gradually brought under economic control over most of the areas where bananas are grown on a commercial scale, you will realize that success will largely depend on the adoption of a higher standard of cultivation than is at present practised in those parts of the country where the lands are of a very broken nature.

As often such lands are not very fertile and are not irrigated they do not respond readily to intensive cultivation. The cost of application of control measures are there considerably greater than where heavy yields can be obtained, or where the soil can be easily and economically worked by mechanical implements.

The extreme division of properties amongst small proprietors who often cultivate bananas but as a casual source of revenue and therefore do nothing to control the Borer on their holdings, will also considerably complicate the task of bringing the Borer under economic control by agricultural methods alone.

As the agricultural education of the masses with regards to insect pest control by agricultural practices is also a slow process, I have, since I have been in this colony studying the problem from all its aspects,

4.

Section through a sucker whose corm had been painted with coal tar diluted with kerosene,' a treatment claimed by some planters as preventing infestation.

Experiments conducted with treated and untreated control plants have shown the author that though the internal tissues of the plant were not affected by the insecticide,

(1) the rate of growth of the suckers was retarded by such treatment. Note the absence of strong healthy young roots in this sucker.

(2) that the insects which were already in the tissues at the time of treatment were not affected by the insecticide. Note tunnels on the right hand side of the corm.

(3) that treated suckers planted on highly infested soils become after a few months as intensively infested as the untreated controls.

arrived at the conclusion that it would be highly desirable to establish in Jamaica some measure of biological control against the pest.

The question of organizing researches in the Far East with a view of finding whether an effective natural enemy of the Borer exists and could be introduced in Jamaica is now receiving the consideration of experts on the subject.

It should however, be realized that one cannot guarantee or even hope for the discovery of an organism that would, once introduced, multiply immediately in such numbers as to destroy all Borers and render unnecessary all efforts to control the pest.

Several natural enemies of the Banana Borer are already known, these have not yet proved, however, that they can play an economic role.

In Java the Borer is attacked by the larvae of the Leptid Fly, Chrysopila ferruginosa, Weid.

In the same country the Banana Borer is also preyed on by a carnivorous beetle known under the name of Plaesius javanus. In 1918 and 1919 two consignments of 59 and 136 specimens of those beetles were imported in Jamaica and liberated in a highly infested banana plantation situated in the Wag Water Valley. Repeated searches have since failed to reveal any beetles of this species.

In Queensland the Borer are preyed on by the larvae of a click beetle (Elaterid) with no apparent result.

We have in Jamaica two species of earwigs, Psalis americana and Anisolabis annulipes which prey on the larvae of the Borer. As their diet is not restricted to the Borer but includes several other insects and as they are never found in large numbers, it is unlikely that they will ever play an important role in the control of the Borer.

A Sub-Committee of the Advisory Committee on the Banana Industry is being formed to collect funds for the financing of a mission that would explore certain parts of the Eastern Hemisphere with the view of investigating whether there exist there other natural enemies that when imported here could control the Borer in an effective manner.

I would not like to see you, by putting too much faith on the immediate results that might be achieved through such researches, slacken your efforts in the direction of control by the methods outlined above.

One however, should bear in mind that even if in a remote future we succeed in bringing the Borer under complete economic control by agricultural practices or by means of insecticides, the cost of application of control measures which need to be constantly applied will always aggregate to an important sum.

All considerations taken into account and in spite of the difficulties of the undertaking, I believe that money spent on scientific researches of the description just mentioned gives promise to prove in the long run a good investment and I shall therefore be glad to put any of you or any of your friends who would like to take a direct interest in the project, in touch with the members of the Committee to which the Government has given charge of the organization of the movement.

If a natural enemy of the Borer is found I hope that it will prove as effective as the parasite of the Black Fly which we have lately introduced.

CONCLUSIONS.

As already explained, the Banana Borer can on the best lands be brought under economic control by judicious agricultural practices alone.

A study of the incidence of the pest during the past shows moreover, that as planters become conversant with the methods to combat this enemy, the prevalence of the pest has been materially reduced in districts where several years ago its depredations had caused great anxiety and unrest.

In the case of irrigated lands of high fertility, there are good reasons for believing that the application of certain of the measures that contribute to keep the pest under control, such as clean cultivation, the burying of all plant refuse, etc., cause an increase of the crop that defrays all expenses incurred for controlling the pest.

To cite an instance where you will find the pest kept under complete economic control by field hygiene and the application of judicious cultural methods, I shall take the liberty of mentioning to you the banana plantations of Caymanas Estate. I chose that example

7.

View of a field where no precaution has been taken to prevent the pest breeding in destructive numbers.

Note (1) in the foreground the petrifying spent stem which has been left in situ after the bunch had been reaped.

(2) the large amount of plant refuse left over the ground.

(3) the exposed crowns of the growing plants.

amongst many as it is the nearest large plantation to Kingston, a fact which may lead several of you to take advantage of its proximity to visit, with the permission of its kind Manager, Mr. Bovell, those fields whilst on your way back to the country at the completion of this course.

Not far in a different direction, and on equally good lands I could show you the Borer at its worst and the reasons for this state of affairs would, I am certain, be immediately apparent to you. I shall, however, let you find out those fields by yourselves as I am afraid that if I name the estate or take you there my action might not be appreciated by everybody.

8.

Corms and pseudo stems cut into much too large pieces to have any effect as regards destruction of breeding material as part of field hygiene.

See Plate II, Fig. I, showing how the spent stems should be disposed of.

9.

An extensive banana plot where field hygiene is logically practiced.

In the past the pest was present in destructive numbers in this plantation; now-a-days it is under complete economic control through the judicious application of agricultural practices which contributed to deprive the pest of breeding places.

Part of the spent stems have here been left standing to 'feed' the suckers, they will in due course be removed and cut into pieces small enough not to harbour the pest.

Note how the pieces of leaf sheaths of the cut pseudo stems are here separate from each other; they have been scattered over the ground to dry or rot rapidly; many have been buried into the soil.

APPENDIX I.

Banana Borer Survey.

Date.........................

To all Officers engaged in the Survey:

Please remember that this document and any other information gathered in this connection are of a confidential nature and should be communicated to the Government Entomologist, under sealed cover, c/o the Director of Agriculture.

Name of Estate and Locality............................

Name and Address of Owner.............................

Name and Address of Manager..........................

Total Area........................Area under Bananas..........Area under other crops, etc..................................

I. Plant Feilds:

A. Are suckers for planting inspected? If so, what is the method?

B. When and where is inspection carried out?

C. How are the suckers transported to the new fields?

D. Are the new plantations situated near older infested fields? If so, what measures are taken to prevent infestation?

E. Are old infested fields replanted? If so, what measures are taken to destroy the pest before the suckers are planted?

F. Have fields which have been damaged or destroyed by high winds or flood been (a) replanted? or (b) repaired?

G. Have you noticed that the pest is being trapped in or around the plant fields?

H. Please note any other interesting point you may notice. For instance, whether suckers are specially treated before planting, etc.

II. Ratoon Fields:

A. What is approximately the acreage you find

(1) Heavily infested................................

(2) Suffering from a mild infestation..................

(3) Slightly infested ....

(4) Not infested.....................................

B. In the case of serious infestation please make notes on the history of each particular field.

C. Are remedial measures applied to combat the Borer

(a) In heavily infested fields;

(b) In slightly infested fields:

D. Describe the remedial measures applied:

E. What preventative measures are applied in

(1) Uninfested plant fields:

(2) Uninfested ratoon fields.

III. Thrown out Fields:

A. Approximate acreage:

B. Can you find thereon any banana stools which have been left standing?

C. When and how have the old stools been destroyed?

D. After how long will those fields be replanted?

IV. Any other Remarks:

Signed............................

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EXPLANATION OF PLATES.

PLATE I.

A Eggs of the Borer greatly magnified.

a Eggs of the Borer natural size.

B Larva greatly magnified.

b Larva natural size.

C Pupa greatly magnified.

D Dorsal view of Borer in the Adult state greatly magnified.

d Dorsal view of Borer in the Adult stage natural size.

F Side view of Borer in the Adult stage greatly magnified.

Note characteristic shape of forehead.

PLATE II.

Fig. 1. Diagramatic section through basal part of stem of a banana plant severed from the stool after it has borne 'fruit' and illustrating the easiest and most economic manner of slicing the tissues to prevent borers breeding therein.

A. Basal part about 14 inches long. This being partly composed of the 'ivory' or corm tissues should be sliced at e, f, g, h, i, j, etc., into slices not thicker than one inch.

It is not necessary to slice the upper part of the pseudo stem which is formed by enrolled leaf sheaths into such thin slices. The pseudo stem should be cut into sections about 18 inches long which are subsequently cut longitudinally into two parts. The enrolled leaf sheaths will then naturally separate from one another exposing large surfaces of the tissues to the action of sun and rain.

B and C sections through the pseudo stem showing between B and C external leaf sheaths beginning to unfold.

Fig. II. Section through the corm of a stool showing the tunnels of the Borer.

On the right of A———B, heavily infested tissues of spent stems.

When repairing remove such tissues as far as A———C.

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EDITORIAL COMMENTS.

The Juveniles.

The inception of great events frequently comes upon us unheralded and unnoticed. The realization of their importance is more often than not the perquisite of the historian.

What is now being popularly termed the Juvenile Agricultural movement is undoubtedly from an island standpoint such an event. It can hardly be denied that the present day standard of the agricultural education of the farmers of the country both large and small has reflected unfavourably the efforts made by the various organizations working towards that end, and purely for their benefit, for the past four or five decades. This Society, for instance has been in active operation since 1895 and yet its Board of Management as well as the officers of the Society are among the most ready to admit that whilst undoubtedly it has done an enormous amount of good for the small farmers and has laid a solid foundation on which further efforts in the same direction may be built, yet the results are not beyond criticism. Analysing causes and effects of this situation, we are forced to fall back on the conclusion that the inherent conservatism of the farmer, acts as a drag to the rapid assimilation of new and progressive methods of agriculture. We all feel that had both the juvenile and adult problems been attacked concurrently, to-day not only would we have much more results to show for our labours, but that our foundation would have been better built by the creation of a more readily receptive farming community on which our future work would be easier, and more likely to bear rapid fruit. Our major error was that we worked on the adult exclusively.

The education of our children in this colony has always been the subject of continuous discussion and public interest. Many widely diverse opinions exist and it may be of interest to give the main lines of thought in the past. One extreme, would be the highest academic teaching that the country could afford. The other extreme would be that education (frequently called book learning) spoils the child for agricultural pursuits and thereby becomes a mixed blessing. In between these two extremes we have various suggested lines of academic teaching, plus vocational and continuation schools, and latterly, thought has been veering to the inclusion of agriculture as an important element of the educational curriculum.

Such agricultural education of juveniles as already exists may be pointed out in the shape of elementary school gardens at the one end, and our Hope Farm Agricultural School at the other end. School gardens hitherto in a general way can hardly claim any very brilliant results and undoubtedly a very serious hiatus exists in between the cessation of elementary training and the Hope Farm School.

So far our picture has been a dark one, but it would appear to us that happily that there is a brightening dawn holding out considerable promise for the future. It has been apparent for some time that all the forces responsible for education in this colony, and these include the teachers themselves, the Board of Education and its estimable Director, and the interested public have been alive to the fact that something is wanting. No section of this educational force has felt entirely satisfied as to the competency of our system or its adequacy for equipping our future men and women for the stern realities of making an agricultural livelihood and it must never be lost sight of that 80 per cent. of our population has this only avenue of activity to

look forward to. Even now schemes are afoot for re-organizing our educational systems whereby agriculture may be efficiently taught to the juveniles of the colony, and we hope soon to see some institutions for the purpose, and departments added to existing institutions which will properly cover the subject.

The Hon. Director of Agriculture, the Director of Education and the Management and Officers of the Jamaica Agricultural Society have fully realised the necessity for co-operation between their various departments and we cannot leave this subject without making special comments on a few enthusiastic Teachers and Agricultural Instructors who together are pioneering a movement whereby Juvenile Branches of the Jamaica Agricultural Society are being formed and where practical work in the production of crops and the care of livestock have been engaged in and which during the past months have produced exhibits at some School Fairs in several districts of Upper St. Catherine. These Fairs we are happy to say were given prominent notice by this Society through the attendance of its First Vice-President and Officers of the Society as well as through the attendance of the Director of Agriculture, and the Director of Education in one instance, and the Assistant Director of Education in other instances, both these gentlemen being accompanied by their wives who devoted much attention to the judging and distribution of prizes in connection therewith. We are very glad that encouragement of these efforts have not been tardy, and we must compliment these pioneering teachers on making a step forward which is helping to lay the foundation in a practical progressive way for the future agricultural educational training of Jamaica's children.

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THE IMPERIAL COLLEGE OF TROPICAL AGRICULTURE TRINIDAD.

J. M. McEwen, (Dip. Agric.)
(Asst. to Secy. Jam. Agri. Society.)

Throughout the tropics the need for men with special training in tropical Agriculture is being increasingly recognized. For a long time it was impossible for a young man to obtain such training except through hard school of practical experience. This entailed a long period of apprenticeship under conditions which were often sufficient to discourage the young agriculturist.

Since 1922 however, when the Imperial College of Tropical Agriculture was opened in Trinidad, the complexion of affairs in this regard has altered. Many young men have realized that agriculture is just as much a scientific profession as any other; and have availed themselves of the opportunity offered them by the College.

We in the West Indies are especially fortunate in the location of the College; but distance has not deterred students from Ceylon, India, the Malay States and many other tropical countries, from availing themselves of its facilities.

Up to the present Jamaica has been perhaps the slowest to take full advantage of this unique opportunity; but now it seems that an increasing number of young men and their parents are becoming interested in the conditions and curriculum of this College. For this reason the Editor has suggested that an article giving a brief outline from the student's viewpoint of the College courses as well as the experiences of the average student might prove interesting and of use.

Trinidad is an island less than half the size of Jamaica, situated very near the mainland of South America. As one approaches Port-of-Spain by steamship the large harbour dotted with small islands presents a very picturesque appearance, whilst the southern borizon is bounded by the coastline of Venezuela.

There are three main mountain chains, the northern range, which runs along the whole northern side of the island, a Central Range and a Southern Range.

The Northern Range in particular is heavily wooded, and abounds in small streams. It contains many fertile valleys which have been cleared and planted with cacao. Otherwise it is largely undeveloped, much of it being a Government forest reserve.

The highest point is slightly over three thousand feet. Some very lovely views are obtainable in this area, the scenery of which bears a strong resemblance to that seen on our Junction road. The Immortelle is grown as shade for the cacao; and, when this is in bloom, the valleys, as seen from above, seem one sheet of flaming red.

The lack of communications in this area is the greatest drawback to its further development. Whilst the main roads are excellent the system of subsidiary "feeder" roads is entirely inadequate. It is only within the last two years that a fairly important village on the north coast was connected by road to the rest of the island. Previously all communication was by boat; and many of the inhabitants had never seen a motor car.

Between the Northern and central Ranges lies the extensive alluvial Caroni plain. On this plain, about seven miles from Port-of-Spain the College is situated. The climate of this area is very similar to that of the Liguanea plains of Jamaica.

Set amid park-like grounds, the College presents a beautiful appearance. The buildings consist of a large Main Building which houses the administrative offices, library and lecture rooms: two smaller buildings which contain the chemical and biological departments, and somewhat apart, the dining hall, and Milner hostel. On a separate plot of land are the power house, low temperature research station and experimental sugar factory. Also on the grounds are the residences of several members of the staff.

As nearly half the time of a student in residence is spent in the Milner hostel, it deserves further mention. A two-storied concrete building, it contains accommodation for thirty-two students in individual rooms. Two other buildings bring the total to about forty-five. Each room is about 15 feet by 10 feet, and each has a small balcony of about 10 feet by 5 feet. These rooms serve both as bedrooms and as studies.

Each room is furnished with a bed, desk and chairs, wardrobe and basin with running water. All rooms open on to a central corridor.

Under certain circumstances, students may be granted permission to live outside the College. However, a student who does this is inevitably deprived of much of the friendly camaraderie that is one of the pleasantest aspects of college life.

Meals are served in the dining hall. The dining room is screened, and is furnished with small tables, each seating four people. The meals are excellent. Above the dining room are a reading room and recreation ooms.

On the average, there are between forty and fifty students each year. Of these, nearly a half are usually Colonial Office students who have already obtained a degree or diploma from an English university, and who spend only one year in Trinidad, taking a post-graduate course. Not all are English: some come from Africa, Australia, Ceylon and many other parts of the Empire. The diploma students are usually from the Carribbean area, including some from South American republics.

The new student will always find conditions somewhat strange at first, but this is undoubtedly less so than at any other College, or even than at a new school. The reason for this is that more than half of the total number of students are new each year, so that the majority are starting off on an even footing.

How soon a student settles down and begins to feel at home will depend entirely on himself. He will find that everyone will be most friendly. Students are encouraged to get acquainted with the members of the staff, who are glad to do what they can to make things pleasant for the new student. The Dean is always pleased to have students consult him on any personal problem, and is usually able to give useful advice or to settle any difficulty which may arise.

As regards the actual training, there are three regular courses open to the student who has no previous University training. These are the Certificate, Diploma and Sugar Technology Courses, occupying two, three and four years respectively.

The Certificate Course is largely practical, with sufficient theoretical work to give the student a scientific grounding. It includes all the essential features of farm management, and is especially suited to the needs of the man who intends to make this his work. He learns how and when to apply the various agricultural operations, largely by having to do them himself. At the same time he gets experience in handling labour. He also learns the principles of pest and disease control in their application to the farm, the chemistry of soil, farm accounting,

sanitation, care of livestock and the botany of crops. A short course in Sugar Technology is included.

The first two years of the Diploma Course are the same as for the Certificate. In the third year the student is given the more intensive scientific training that is necessary for an agricultural officer.

In the Sugar Technology Course, the first two years are the same as for the other two courses. During the last two years the student concentrates more on sugar chemistry and engineering.

Many estates in Jamaica already employ qualified sugar chemists, but there is room for much improvement in this direction. As more estate owners realize that, in order to obtain the best results, chemical control in the factory must keep pace with improvements in machinery and cultural operations, an increasing demand for men with this specialized training must become evident.

Besides these standard courses, students interested in special branches of agriculture can have special courses of varying length arranged to suit their particular needs. Any information on courses of this nature can be obtained by applying to the Registrar of the College.

The students' day begins with breakfast at 7.30. The first lecture of the day starts at 8.30. There are six one-hour periods each day, from Monday to Friday. There are usually no lectures on Saturday except for third year students. The time each day will be divided between practical work and lectures. If the practical work is in agriculture it will take place on the college farm, which is of about seventy acres. There the first year student will learn to plough, harrow, plant various crops, or perhaps the principles of irrigation and drainage, or the method of harvesting and storing some crop.

The main crops usually grown on the farm include bananas, cane, maize, sorghum, cowpeas, soya beans, yams, sweet potatoes, cotton, tobacco, onions, pigeon peas, ground-nuts, millets, and various green manure and cover crops. Besides this, demonstration plots of less important crops are grown each year. Rice is cultivated in an entirely separate section.

There is no dairy on the farm, only working animals being kept; but the Government Stock farm is very near the College, and students are there made familiar with all the operations of livestock breeding and the care of dairy animals.

Attached to the college there is also a small orchard containing examples of most of the economic fruit trees of the tropics. Demonstrations in the care of citrus trees are given at the Government Experimental Farm. Cocoa, coconut, citrus and sugar estates are visited for further demonstrations.

Other practical work in connection with the courses on chemistry of soils, control of pests and diseases, etc., is performed both in the laboratories and in the field.

Lectures are given on the various subjects by the professors and lecturers. The student takes notes, which he later supplements by recourse to the publications mentioned by the lecturer. These are to be found in the extensive library. These notes then form his text books on the subjects dealt with, no others being found necessary in most cases.

Apart from the six hours per day, there are no restrictions on the way a student spends his time; although he is naturally expected to devote some time to his studies. This privilege is greatly appreciated, and seldom abused.

The rules are as few and as flexible as possible, the students

responsible for the maintenance of order without the necessity for intervention by the College Authorities.

The value of sport as a health measure in the tropics is fully recognized by the Staff, who encourage the students to take part in the organized college games whenever possible. Rugby, soccer, hockey and cricket matches are played against various Trinidad clubs and also against visiting teams. Tennis and swimming are available at the College all the year round.

How much the student mixes in the social life of the island outside of the College will depend entirely on his own inclinations. The only restriction is that a student may not join any club. The average student finds that he soon gets to know lots of people, and that he can have a very enjoyable time without detriment to his studies. As in all the West Indian islands, the Trinidadians are very hospitable and kind to the visitor to the island.

An attempt has been made in this article to answer some of the questions usually asked by those interested in the College. The account given here is naturally by no means a detailed one, as it is felt that the actual personal experiences of one student are not likely to be of any material assistance to any other. It is hoped that what has been written here may correct some of the popular misconceptions which exist, and may help to give the prospective student and his parents a clearer view of the life and aims of the College.

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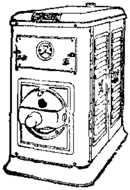

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THE RECLAMATION OF SALT AND ALKALINE LAND.

(Extract from the Allahabad Farmer, May, 1934.)

[BY E. MACKENZIE TAYLOR, DIRECTOR, IRRIGATION RESEARCH, PUNJAB.]

The methods that can be adopted in reclaiming land containing salts are based on a knowledge of the chemical reactions which take place between the salt and the clay in the soil, the effect of these reactions on the behaviour of the clay towards water and on the resulting physical properties of the soil. A brief account of the reactions that take place in the removal of salts is necessary in order to understand the methods adopted. It may be stated that the soils of the Punjab generally have a lower clay content than those met with in Egypt, and that the principal salt met with in Punjab soils is sodium sulphate, while that present in Egyptian soils is sodium chloride.

The removal of salts, such as sodium sulphate and sodium chloride, from the soil by leaching appears to have been regarded as a simple mechanical process. Chemical reactions take place, however, during the leaching which have an important bearing on the further treatment of the soil.

The clay in a normal soil is mainly present in the form of calcium clay. A soil containing calcium clay is permeable to water and air, the conditions in it are ærobic and the methods to be adopted in the cultivation of such a soil are well-known. All alluvium deposited in fresh water belongs to the calcium clay type. When a solution of sodium sulphate is brought in contact with a calcium clay soil, base exchange takes place, the sodium replacing the calcium in the clay, resulting in the formation of a sodium clay. The reaction is shown in the following equation:—

$$Na_2\,So_4 + Ca - Clay = Na_2 - Clay + Ca\ \ So_4.$$

If land containing sodium sulphate is leached, the above reaction takes place, and the drainage water will contain some unchanged sodium sulphate together with the calcium sulphate produced as the result of the reaction. Owing to the alternate dry and wet periods in the Punjab, this reaction has taken place repeatedly in certain soils, so that the main clay type present in these soils is now sodium clay. The sodium clay formed is not suitable without further treatment for the production of general farm crops. The leaching of salts from the soil is only the first stage, therefore, in the reclamation.

A further point that must be mentioned is that so long as the solution of sodium sulphate remains above a certain concentration, the sodium clay is stable and flocculated. The soil in this condition is permeable to water. It follows that the removal of the sodium sulphate by leaching is possible so long as the solution of sodium sulphate is above a certain critical concentration. Below this critical concentration of sodium sulphate, the clay becomes deflocculated and the soil impermeable as will be explained later. The complete removal of sodium sulphate from a soil by simple leaching is neither possible nor is it desirable as the land becomes impermeable.

When the concentration of the sodium sulphate solution falls below the critical point, the sodium clay is no longer stable but begins to break down as the result of hydrolysis according to the following equation:—

$$Na_2\text{—}Clay + H_20 = {}_2Na\,OH + H_2\text{—}Clay$$
$$\text{(alkaline)}$$

The result of this reaction is that the clay is now in the presence of *a solution of sodium hydroxide which is alkaline. In this solution the* clay becomes deflocculated and the soil is impermeable to water. The first result of this is that the soil can no longer be leached. The second result is that the soil is quite unsuitable for crops, with the exception of sugar cane and rice, owing to the anærobic conditions in the soil. Continuous leaching of salts from the soil converts a "white Alkali" soil into a soil containing sodium clay undergoing hydrolysis. Howard thinks that alkaline conditions result from poor aeration, the reverse is the case, the alkaline condition produced by the hydrolysis of sodium clay results in poor aeration.

It was formerly thought that a "Black Alkali" soil contained sodium carbonate. I have examined a large series of such soils and have recently shown that a black alkali soil does not contain sodium carbonate except under certain conditions at the actual soil surface. The alkalinity of this type of soil is not due to sodium carbonate but to the presence of sodium hydroxide formed by the hydrolysis of sodium clay. This conclusion is important in connection with the action of gypsum on such soils and their general treatment. From the foregoing, it will be seen that there is a direct connection between a white alkali soil and a black alkali soil, continuous leaching converting the former into the latter. Uncontrolled leaching of a white alkali soil may result in actual soil deterioration. Land may be met with at any stage between a high salt content and alkaline land. As a general rule, the more *salt* a soil contains the easier it is to reclaim.

The difficulty in land reclamation is to overcome the effects of hydrolysis produced by leaching. The methods that can be used are as follows:—

1. Methods devised for the direct cultivation of the sodium clay.
2. The conversion of the sodium clay into some other type of clay by base exchange.
3. The prevention of the hydrolysis of the sodium clay and the direct cultivation of the soil.
4. *Producing conditions* in the soil so that *continuous* hydrolysis can take place resulting in the destruction of the sodium clay.
5. Application of sulphur as a fertilizer.

I propose dealing with each of these methods.

1. *Methods devised for the direct cultivation of the sodium clay:*—At the present time, the types of crop that can be grown directly on hydrolysing sodium clay are very limited. The two principal crops are rice and sugar cane. If the crops desired are limited to these two, then reclamation can be said to be effected by simple leaching. The standard of reclamation is in this case low. If wheat, cotton and clovers are to be grown, then leaching will not effect reclamation. It may be possible to develop new methods of cultivation of this type of clay and put the land under a normal series of crops. This method will be referred to under (3).

2. *The Conversion of the sodium clay into some other type of clay by* [illegible]*se exchange.*—Attempts have been made to alter the sodium clay by [illegible] exchange with solutions of salts. The salts which have been [illegible] tried are calcium sulphate and calcium chloride. In addition, [illegible]tain conditions, I have had successful results with magnesium [illegible]d ferrous sulphate.

[illegible]m sulphate was originally suggested by Hilgard because [illegible]ed that sodium carbonate was present in alkaline soils. [illegible]between calcium sulphate and sodium carbonate would

lead to the formation of calcium carbonate and sodium sulphate. The former would be precipitated in the soil and the latter could be removed by further leaching. As sodium carbonate is now known not to be present, this theory of the action of calcium sulphate does not hold. It is now supposed that calcium sulphate and the sodium clay react to form a calcium clay which can be cultivated and sodium sulphate which can be removed by leaching. Unfortunately calcium sulphate is very slightly soluble in water and the solution is never concentrated enough to produce base exchange to any appreciable extent. The calcium sulphate temporarily flocculates the sodium clay, as a result of which, conditions in the soil become æroblic and the soil permeable. As soon as the quantity of calcium sulphate is reduced below the amount necessary for flocculation, the land reverts to its former condition and further dressings of calcium sulphate become necessary. "Reclamation" by the use of calcium suphate is temporary, and owing to the repeated dressings necessary, it is expensive. The action of calcium sulphate has been studied by me in Egypt and Cambridge, and the investigations are being continued here.

(*b*) Calcium chloride is more soluble than calcium sulphate and therefore a solution can be formed sufficiently concentrated to produce base exchange, a calcium clay being formed. Owing to the large amount of sodium to be replaced in a soil, it is only on *light* soils that calcium chloride can be economically used as the quantity required is large.

(*c*) I have used magnesium sulphate successfully as a salt to produce base exchange. The resulting magnesium clay is suitable for general crop production, though it is more difficult to obtain a good texture than in a calcium clay. When the land to be reclaimed is heavy, the cost is again excessive unless a crop with a high selling value can be produced.

(*d*) Ferrous sulphate has been used successfully in South Africa on my recommendation. The clay produced in this case is a ferrous clay which on oxidation forms a friable ferric clay. The soil treated was light, the amount of replaceable base low, and the land was used for fruit production. The treatment was successful but it is too expensive for ordinary farming conditions.

The methods of reclamation by base exchange can be used successfully but are generally too expensive for the farmer to adopt.

3. *The prevention of the hydrolysis of the sodium clay and the direct cultivation of the soil.*—The hydrolysis of the sodium clay can be prevented by the use of water of fairly high conductivity. This method is being further investigated in the laboratory. An Experiment which I carried out in Egypt was successful. In this case the soil was alkaline-black alkali and instead of using canal water for irrigation, drainage water was used. The soil when irrigated with canal water gave no crop, but with drainage water a fair crop of cotton resulted. The water of high conductivity prevented the hydrolysis of the sodium clay and hence the soil was permeable, the conditions aerobic, and suitable for crop production. The method is also being tested on my suggestion at the Imperial College of Tropical Agriculture, Trinidad, in connection with the cultivation of certain impermeable clays on which it is desired to grow sugar cane. The method may be of particular importance in the Punjab in connection with the reclamation of Bara soils. Either drainage from other areas may be used for irrigating these soils or wells in the area which yield water of high conductivity may be used as the source of irrigation water. If drainage water can be used successfully for the irrigation of these soils, it will considerably alter the economics of drainage construction in areas affected by waterlogging and *kallar*.

4. *Producing conditions in the soil so that continuous hydrolysis can take place resulting in the destruction of the sodium clay.*—The production of conditions in the soil so that continuous hydrolysis of the sodium clay may take place is the method most generally used for reclamation work. After the leaching of salts to the critical concentration rice is grown in land undergoing reclamation. The reason usually given for growing rice is that it will tolerate a certain amount of salt and at the same time produce income. Investigations which I carried out in Egypt show, however, that rice plays a definite part in the reclamation process.

If rice is not grown, the soil is impermeable owing to the presence of sodium hydroxide. The roots of the rice crop appear to generate carbon dioxide in the soil which converts the sodium hydroxide successfully into sodium carbonate and sodium bicarbonate. The soil in the presence of sodium bicarbonate is again permeable. Leaching can be continued therefore and the sodium clay decomposed as the result of the hydrolysis which becomes a continuous process.

The land to be reclaimed is canalised and drained. Drainage is of the open drain type and the distance between drains about 120 feet during reclamation. The field drains are dug to a depth of 3 feet, the width at the bottom being 9 inches and at the top 36 inches. The unit of reclamation between drains is usually about two acres. In very stiff soils, the drains are closer together and one acre areas are the reclamation units. The land is flooded with water to a depth of 4 inches and kept under this head of water for some time. At first percolation is rapid but the rate becomes gradually reduced. Just before the impermeable stage is reached, the land is dried, ploughed and a long growing period rice is sown. The further leaching of the land is then carried out under the rice crop. After one rice crop has been taken, the sodium clay is usually sufficiently hydrolysed to allow of berseem being grown. Two cuttings of berseem are taken and then the berseem is ploughed in as a green manure. If the berseem crop has been good, cotton is usually the following crop, the yield expected in Egypt being about 350 lbs. lint per acre. If the berseem crop has not been a success, it indicates that the hydrolysis of the sodium clay has not been carried far enough and a further crop of rice is taken. This point may be decided after the first rice crop by examination of the soil in the laboratory.

It is essential for this type of reclamation that an efficient drainage system should be constructed and maintained. After reclamation has been completed, the drainage system must still be maintained, since areas in which salt has been present are always liable to resalting. The introduction of rice into the crop rotation once every four years may also be necessary to remove any salts that may have accumulated during the production of the other crops in the rotation.

5. *Application of sulphur as fertilizer.*—Sulphur used as a fertilizer, has been tried for the reclamation of alkali land in America and Egypt. The sulphur is oxidised to sulphuric acid by bacteria in the soil. The sulphuric acid thus produced assists in the hydrolysis of the sodium clay, sodium sulphate being formed and removed by drainage. Reports indicate that the method is successful, but I have seen no account of the economic side of the treatment. The use of sulphur may be investigated later at Chakanwali Reclamation Farm.

From the point of view of the general farmer, the two most promising methods of reclamation are (3) and (4) the former being used on impermeable soils of land salt content, and the latter on salt soils. Drainage

is essential to all methods of reclamation now being used. If the reclamation of kallar or alkaline soils is to be attempted, the construction of efficient drainage systems in the reclamation areas will have to be considered.

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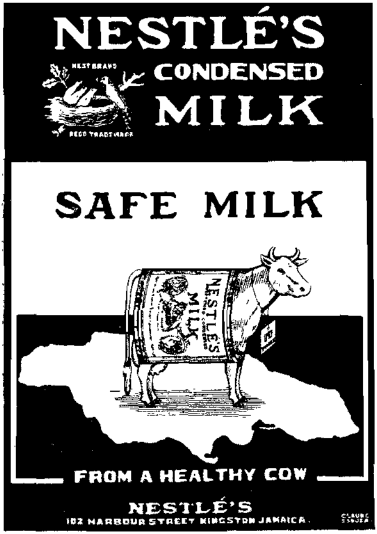

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SUGAR CANE.

(*Extract from the* 1933 *report Puerto Rico Agricultural Experiment Station.*

MAYAGUEZ 28.

Of the sugar cane varieties produced by the station, Mayaguez 28 ranks first in importance. Its area under cultivation has more than trebled in 2 years' time and now totals over 3,500 acres. This acreage includes 315 at Jayuya, 600 at Isabela, and 900 at Coloso. Its rapid extension is due to an unusually valuable combination of characters, prolificness, spreading habit, resistance to drought and to mosaic, high purity, and comparative freedom from pithiness and from hollow cane centres. Each of these qualities was investigated during the year.

In gran cultura and first ratoons at Coloso.—In a 2-year trial of gran cultura and first ratoons at Coloso, Mayaguez 28 gave 7.76 and 3.2 tons of sugar per acre, respectively. This production was not exceeded by that of either B.H. 10 (12) or P.O.J. 2878. It was superior in each case to that of P.O.J. 2725, S.C. 12/4, and P.O.J. 2714. The cane production of P.O.J. 2725 was about equal to that of Mayaguez 28 both years but the latter was definitely superior in sucrose content. The superiority of Mayaguez 28 to S.C. 12/4 was due largely to its prolific stooling habit, the former producing twice as many canes per stool as the latter. Mayaguez 28's resistance to dry top rot as well as richer juice accounts for its wide margin of superiority over P.O.J. 2714; the latter's stand became depleted by the disease in the first ratoon crop.*

Prolificness and spreading stooling habit lower cultivation costs.—Mayaguez 28 is more prolific than any other thick-caned variety now grown in Puerto Rico, including P.O.J. 2725 and P.O.J. 2878. Where open spacing is practiced as many as 20 to 25 canes per stool are not uncommon. This, together with an early growth habit so spreading that the leaves remain almost flat on the ground during the first 3 months, has resulted in low cultivation costs. Mayaguez 28 closes in several weeks earlier and requires one less hand weeding than either P.O.J. 2878 or P.O.J. 2725. The contrast is even more marked with the mosaic-susceptible varieties B.H. 10(12) and S.C. 12/4, which generally require six to eight hand weedings.

Drought resistance.—Mayaguez 28 was previously reported as drought resistant,† even more so than S.C. 12/4. This quality has been confirmed on an extensive scale in the Isabela area where Central Coloso grew 50 acres of gran cultura without irrigation; it remained in flourishing condition throughout the dry winter season. The foliage of adjoining fields of P.O.J. 2878 suffered badly from drought and many tops were injured beyond recovery.

The same contrast was noted at Mayaguez in 1932 in gran cultura plantings of both varieties grown in adjacent plots. The leaves of Mayaguez 28 suffered slightly while the tops of P.O.J. 2878 canes became stunted beyond recovery. The dark green fields of Mayaguez 28 show up in sharp relief against surrounding fields of P.O.J. 2878 and B.H. 10 (12) which suffer from drought.

Resistance to Mosaic.—A special survey was conducted to determine the mosaic resistance of Mayaguez 28 and to what extent roguing

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* Additional information on the results of the Coloso gran cultura trial was published, for general distribution in Agricultural Notes No. 61 copies of which may be had upon application to the director of the station.

† Davis, R. L. JAVA-BARBADOS IN PORTO RICO. Planter and Sugar Manfr. 83: 83-85 100, 103-104, 123-125, illus. 1929.

might be necessary. Fourteen fields were examined at Centrals Igualdad, Eureka, Coloso, Santa Barbara, Pagan, and at Hormigueros and Mayaguez. In nearly every instance fields were chosen which were near mosaic-infected plantings of P.O.J. 36 or of Co. 281, so that chances favoured the spread of mosaic. In spite of efforts to choose the worst fields, mosaic infection rarely affected more than 3 to 4 per cent. of the shoots. Duriug the time of the survey, from 1931 to 1933, inclusive, mosaic spread very rapidly and increased from little more than zero to 90 or 100 per cent. in fields of susceptible varieties in the immediate vicinity of the inspected fields of Mayaguez 28. In the latter fields, where infection appeared, completely infected stools predominated, indicating that infected cuttings had been planted and that secondary infection had been very light. In the Anasco and San German Valley districts where an effort was made to plant mosaic-free cuttings of Mayaguez 28 and to keep it rogued, one roguing was sufficient to keep the infectiou down to 1.5 per cent. even in fields adjoining a constant source of infection.

The results of the survey indicate that mosaic infection in Mayaguez 28 spreads very slowly and is not apt to become a serious factor. The seed beds of Mayaguez 28 should be kept free from mosaic by digging out infected stools; this is a very inexpensive operation and will keep mosaic infection at a very low level in general field plantings.

Where mosaic is a limiting factor as at Isabela where the cost of replanting stools of S.C. 12/4 destroyed by mosaic is almost prohibitive, expense on that account has been drastically reduced through the introduction by the station of the mosaic-resistant canes, P.O.J. 2878 and Mayaguez 28.

High purity.—For 7 years Mayaguez 28 has proved to be superior to P.O.J. 2725 in juice quality. The data for the gran cultura and first ratoon variety trials at Coloso (fig. 2) are of particular interest as they indicate that in purity percentage Mayaguez 28 outclasses P.O.J. 2725 and is even superior to B.H. 10 (12), S.C. 12/4, and P.O.J. 2878. The margin of superiority in purity percentage over the three last-named varieties was from 1½ to 2 per cent. in the first ratoon crop; considering that the percentage of broken cane tops due to the hurricane of September, 1932, was higher for Mayaguez 28 than for any other variety under trial at Coloso, its very high purity is of unusual interest

Arrowed stalks comparatively free from pithiness or hollows centers.—Mayaguez 28 was reported by cane growers of Isabela and Coloso as practically free from drying out or pithiness in cane tops. Examinations at Coloso, Mayaguez, Cabo Rojo, and at Central Mercedita, Ponce, substantiated this claim. Averages of only 7 to 8 inches of pithy canes were found on arrowed canes of Mayaguez 28 and below this the cane centers were usually entirely solid. No pithiness was found in non-arrowed canes or in canes with tapered tops in which arrows had failed to develop. Under the same conditions both P.O.J. 2725 and P.O.J. 2878 developed from 2 to 3 feet of pithy cane tops on arrowed canes; furthermore pronounced pithiness was observed in canes with tapered tops and even in non-arrowed stalks. The loss per cane due to drying out of arrowed cane tops is estimated to be approximately four times as great for either of these Javan varieties as for Mayaguez 28 in fields where the latter blossoms. The advantage of Mayaguez 28 over P.O.J. 2725, is often greater than this, however, since arrowing is often practically nil for Mayaguez 28 in localities were P.O.J. 2725 blossoms profusely.

Due to its comparative freedom from pith or hollow centres, Mayaguez 28 canes have a high specific gravity. At Coloso and Mayaguez they proved nearly one tenth heavier than water, whereas those of P.O.J. 2725, barely equaled water in weight. The combination of high sucrose content and high specific gravity results in low transportation costs per ton of sugar for Mayaguez 28. This item of expense is important where canes must be hauled 10 to 15 miles.

Adaptability on Isabela red clay.—Trial plantings made in 1931, demonstrated the adaptability of Mayaguez 28 to the friable red clay soil of Isabela. This soil is so loose that irrigation water soon after application drains away rapidly from below. On such soil a variety having a strong root system, drought-resistant foliage, and ability to cover the ground rapidly is required. Mayaguez 28 met all these requirements. At Isabela its foliage proved to be very drought resistant, its root system developed rapidly and functioned well even when deprived of irrigation water, and many spreading shoots and broad leaves covered the ground even more rapidly than did those of P.O.J 2878.

As a result of the favourable growth made by the trial plantings and the satisfactory sugar production in the Coloso variety trial the Isabela cane growers rapidly extended the planting of Mayaguez 28. It now occupies 600 acres and is one of the principal varieties in the Isabela district.

Primavera plantings of Mayaguez 28 at Isabela harvested in the spring of 1933 on the holdings of Central Coloso and on the Carlos Cabrera farm gave satisfactory results. The juices were very rich, rarely falling much below 85 per cent. purity, and were generally superior to those of P.O.J. 2878 ratoons harvested at the same time.

Arrowing of Mayaguez 28 was practically nil in primavera which has been planted at Isabela in March and April. Mayaguez 28 has therefore a big advantage over P.O.J. 2725 in the Isabela area since the latter arrows freely there in April or May plantings.

Valuable for hillside planting.—Mayaguez 28 has been planted on a large scale on steep hillsides near Jayuya at elevations of 1,000 to 1,500 feet. It is rapidly replacing P.O.J. 2725 and now occupies 315 acres. The Jayuya cane lands are for the most part so steep that all land preparation and cultivation are done with hand labor. The heavy rainfall on the steep inclines causes very rapid erosion where land is left uncovered for any length of time. It is therefore very desirable in planting such slopes to have a prolific variety that closes in rapidly. P.O.J. 2878 and P.O.J. 2725 have been used with some success, but both are considered inferior to Mayaguez 28. Mayaguez 28 spreads out and covers the ground more rapidly than either, does not have the uprooting tendency so objectionable in P.O.J. 2878, and gives a higher percentage of sugar in cane than P.O.J. 2725.

Demonstrated adaptability should precede extension.—The station has never advocated the wide etension of Mayaguez 28, notwithstanding its many excellent characteristics, on areas where its adaptability is unknown. On the contrary, centrals have been urged to include it in variety trials and to keep the commercial plantings down to a minimum until its adaptability has been fully demonstrated.

Mayaguez 28 has a sucrose content superior to that of P.O.J. 2725, and has a two-fold advantage over S.C. 12/4 in its superior resistance to drought and to mosaic. Furthermore it was superior in sugar production to both of these canes in the Coloso 2-year variety trial. The station has therefore urged its trial in upland areas along the north coast where S.C. 12/4 and P.O.J. 2725 are the principal varieties.

Mayaguez 28 gran cultura has in several instances developed much rotten cane in the San German Valley. In gran cultura the canes of Mayaguez 28 become reclining to procumbent and are apparently more susceptible to decay than those of P.O.J. 2878. The station cautions planters against the cropping of Mayaguez 28 as gran culture in humid lowland areas along the north coast until its adaptability to such areas is known.

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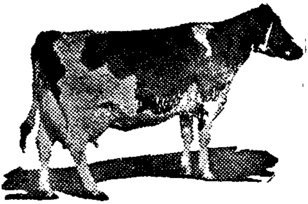

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Unusual interest has been aroused in the cultivation of the Soya Bean in Jamaica on account of the market offered by an oil-making concern in Kingston. It happens that our Mr. McEwen, Dip. Agric., Assistant to the Secretary, has seen the crop grown in Trinidad, which inclines one to think that it will also be possible to grow the crop in Jamaica.

The article following has been contributed by him. [Ed.

THE SOYA BEAN.

By J. M. McEwen, Dip. Agric.

The Soya Bean—Soja (Glycine) Maxima—has long been the oil seed par excellence of the Eastern Sub-tropics. It is widely grown in Japan, China and Manchuria and parts of India.

Of late years, its culture has been extended to many other parts of the sub-tropics and even to the tropics, with varying degrees of success. There are now quite extensive plantings in parts of the United States.

In the east, it is an important article of diet, and is prepared in many ways. In other parts of the world, it is cultivated almost entirely for the oil it contains. This is used as a cooking oil, or as a drying oil in paints.

The Soya Bean has been grown with fair success in small quantities in Trinidad, provided that the seed is innoculated with the correct strain of legume bacteria. If uninnoculated seed is planted in soil which does not contain this bacteria, growth will not be satisfactory.

Like many other oil seeds, the seed quickly loses its viability if stored at ordinary temperatures for more than a couple of months. This is often the cause of very irregular germination, giving a poor stand. This difficulty can be overcome if there are facilities for cool storage under controlled conditions. In this way it is possible to store seed for 6 months or more and still obtain a satisfactory germination percentage.

There are a very large number of varieties, which often differ markedly from one another. The plant is normally erect in habit, branching freely. It is extremely susceptible to environmental conditions. Under West Indian conditions it seldom grows taller than two feet. The flowers vary from white to purple, and the seeds from white to black. These characters are, however, constant in any one pure variety. The pods are short and often hairy, and are borne in a cluster around the main stem and branches. When thoroughly ripe the leaves are shed and the bare stems are left with the pods. The whole plant is usually harvested and the seed separated by beating or by treading out with oxen. Many varieties, however, have the undesirable habit of shattering in the field, resulting in the loss of a large proportion of the crop. Such varieties should be avoided if possible; but, if they must be grown, the plants should be harvested when the the majority of the pods are half ripe. The plants are then sun-dried on the drying floor or barbecue.

The various varieties differ widely in oil content, and care should be taken to ascertain that the variety planted is satisfactory in this respect. The oil content of the dried seeds should be 20% of the total weight. The protein content varies from 20% to 40%. It is said that high oil content is usually associated with low protein. Also light seeded types are said to be higher in oil than those with dark-coloured seeds.

If desired, pure line selection is relatively easy, as the percentage of natural crossing is said to be small.

The seeds are usually sown in rows 2½—3 feet apart. Owing to its uncertain germination, it is best to use a fairly heavy seed-rate, and thin out as required. Damping off of the seedlings is fairly common. The plant is comparatvely free from serious pests and diseases. The crop-period varies with variety and locality, the extremes being about 2½ and 6 months. In Jamaica 3—4 months would probably be sufficient.

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EDITOR'S LETTER BOX.

Little London P.O.,
June 18th, 1934.

The Editor,
Dear Sir,

"Could you be so good and kind as to publish the following lines into your valuable Journal and if possible in the Gleaner and Times newspapers."

"I respectfully beg to congratulate the Jamaica Agricultural Society on appointing a few years ago a Bee-Instructor in the person of Mr. H. H. Coote. He is the right man in the right place. His presence here in the west from time to time is putting more interest and energy into the downhearted Beekeepers, and is pushing the industry ahead. When he was appointed some years ago as Bee Instructor he came around and found me with 40 colonies of bees in one apiary in old kerosene hives in frames on the ground. It did not take him long to driving it into my head to put them in good hives, get a better strain of bees, requeen them, and take them off the ground, and pay more attention to them. Previous to the storm of last October, I had 350 colonies in 6 apiaries in first class boxes and condition. This storm took 100 colonies from me, and left the remainder in a dilapidated condition. I was so discouraged that I was thinking of giving up, but after meeting the Instructor again he gave me some more energy and I went back to my job, and today, I have 325 colonies in 6 apiaries. I am trying to make my goal 400 colonies, but after meeting Mr. Coote again on Friday 15th inst., at a demonstration at my yard, he got it into my head again to make my goal 500 colonies which would give me a better income annually. I have decided with him to make 400 this year in 7 apiaries, and if I am spared, certainly next year, I hope to reach 500. This is not a castle in the air; my foundation is strong. I will say nothing of my honey crops annually, but I can assure my readers that my honey crop this year is ten times larger than before I met Mr. Coote, and I have to admit that my success is due to this gentleman's influence from time to time. I have many more stories of this same nature to report, but I believe I would be taking up too much of your valuable time and too much space in your journal. I also feel certain that the majority of the beekeepers have the same experiences and opportunities with Mr. Coote.

Thanking you for space."

Yours truly,
H. H. TOUZALIN.

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R. EDEN BODDEN, Manager.

MARKETING NOTES.

Brazilian Citrus exports.—

Exports of oranges from Brazil during 1933, amounted to 2,554,000 boxes; while the grapefruit exports amounted to only 5,602 boxes.

(*Extract from Weekly Fruit Intelligence Notes, 6th June,* 1934.)

In the season just ended, total exports of citrus firuit from Palestine amounted to about 5,500,000 boxes, including 350,000 boxes of grapefruit and 14,090 boxes of lemons.

It is however anticipated that the crop in 1934-35 will be from six to six and half million cases.

LOCAL PRODUCE PRICES.

Cocoa—Ordinary	20/- delivered Kingston
Fair Fermented	20/- " "
Estates Fermented	21/- " "
Coffee—Good Ordinary	40/- " "
Fine Ordinary	42/- " "
Manchester-B	42/- " "
Manchester-A	44/- " "
Ginger—Ordinary	52/- " "
Medium	54/- " "
No. 1	64/- " "
Honey—White ..	2/3 per gln. delivered Kingston
Pale	1/9 " " "
Light ..	1/6 " " "
Dark ..	1/3 " " "
Kolanuts—Sound quality, well cured	5/- delivered Outport 6/- delivered Kingston
Orange oil—Sweet, sound quality	2 9 per lb. delivered Kingston, containers free to us 2/6 we supply containers.
Sarsaparilla—Well cured, red roots	40/ per 100 lb., nett weights, delivered Kingston.

Wax—Pure and clear, 7d. per lb., nett weights, delivered Kingston.

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NOTICE.

DEPARTMENT OF SCIENCE AND AGRICULTURE.

Development of the Citrus Industry.

1. Notice is hereby given that budded plants of oranges and grapefruit will shortly be available for distribution from the Government nurseries on the terms and conditions set out hereunder.

2. Early supplies will be limited in number and confined to grapefruit of the Marsh variety. Orange plants will be supplied when plants are ready in sufficient numbers.

3. Applications for the supply of plants are invited from those persons who desire to establish orchards, stating their name, locality and description of the land in which the trees are to be planted, the area it is desired to plant, and enclosing a remittance of 2/6d. The applications should be addressed to The Director of Agriculture, Hope, Kingston P.O. and clearly marked on the top left hand corner of the envelope "Citrus." The deposit of 2/6d. will be credited against the cost of the plants supplied, or refunded if no plants are issued.

4. Before issuing plants the Director of Agriculture may require to be satisfied that the land specified in the application is suitable for the growing of citrus, and that it is properly prepared for planting. For these purposes it will be assumed that the applicant agrees to have his land examined by a person appointed by the Director of Agriculture.

5. *Plants will not be issued for planting if the land is unsuitable, nor until approved* land has been prepared, nor until they have been paid for.

6. The price of plants will be 3d. each for the first 25, and 1/- each for any number in excess of 25.

7. No guarantee of the supply of the whole or any portion of orders can be given. Issues may be made of the whole or a portion of any applicant's requirements at the discretion of the Director of Agriculture in accordance with the supplies available.

8. Plants are being made available at a low price on the understanding that persons *taking them agree to plant them in accordance with instructions, and to permit the areas* planted to be inspected from time to time.

9. The Director of Agriculture in his discretion may cause citrus plants to be issued for planting in lieu of any compensation for destruction of bananas on account of Panama Disease for which banana planters may be eligible, subject to paragraphs 5 and 8 above.

(Sgd.) A. C. BARNES,
Director of Agriculture.

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SOIL EROSION.

(*Extract from Queensland Agricultural Journal, May* 1, 1934.)

From every conceivable angle erosion is a devastating agency. It is the greatest thief of soil fertility. It steals not only the plantfood contained in the soil, but the whole body of the soil, plantfood and all. When this productive material that required centuries in the building is washed out of fields it cannot be economically hauled back, even where it is washed no farther than from the upper to the lower slopes of fields. That which passes down into the beds of streams and on out to the ocean is lost as irretrievably as if consumed by fire. It has been estimated that erosion steals twenty-one times as much plantfood as crops take out of the land.

Surveys and soil-loss measurements indicate that at least 3,000,000,000 tons of soil are washed out of the fields and pastures of the United States every year. The value of the plantfood contained in this amounts to more than two billion dollars, on the basis of the cheapest fertilizers. Of this almost inconceivalbe wastage, the direct loss to the farmers of the United States of America is not less than 400,000,000 dollars every year. This is paid for in reduced acreage yields, increased cost of cultivation, fertilization, and the growing of crops for the sole purpose of building up impoverished fields, in land abandoned, highways damaged, reservoirs, irrigation ditches, and culverts choked with erosional debris, and accumulative thinning of the surface soil, the staggering cost of which is postponed until the last inch of soil is washed off.

THE WEATHER.

(*Extract from Jamaica Weather Report, April,* 1934.)

THE TEN-YEAR EVAPORATION TABLE.

A Table, giving the monthly evaporation for the ten-year period, 1924-1933, with the respective means, is appended.

The greatest monthly mean occurs in the month of May, with 7.91 ins., and the least in November with 3.55 ins. If a curve be drawn it will be apparent that there is steady increase of evaporation from November to May the following year, and after July a steady decrease to November.

The mean annual evaporation gives 71.71 inches, or about 6 feet. A rain-gauge installed but a few feet away from the Evaporimeter gives a ten-year mean of 35.66 ins., or just about one-half that of the evaporation annual mean. Taking the five driest years, 1925, 1926, 1929, 1930 and 1932, the mean rainfall shews 22.6 ins., and the mean evaporation for the corresponding years shews 72.9 ins., or a little above three times that of rainfall figure. Then, on the other hand, the wet years 1924, 1927, 1928, 1931 and 1933, the mean rainfall gives 48.7 ins., and the mean evaporation 70.5 ins., or only $1\frac{1}{2}$ times that of the rainfall, although the rainfall may have been more than doubled in the second group of years. The evaporation mean gives 72.9 ins. in the first group, and 70.5 ins. in the second group, establishing the fact that the total rainfall has not a very marked effect upon the degree of evaporation. Taking the extremes, we find that, as in the year 1930, when the rainfall was only 15.92 ins. the evaporation was 74.04 ins., whereas in the year 1933, the rainfall was 85.93 ins. and the evaporation 64.43 ins. The total rainfall in the first case, was nearly 58 ins. below that of the evaporation and in the wet year 1933, the rainfall was a little over 20 ins. above that of the total evaporation.

Table giving the total Evaporation for each month for ten years from 1924 to 1933.

Year.	Jan.	Feb.	Mar.	Apr.	May	June.	July.	Aug.	Sept.	Oct.	Nov	Dec.	Total.	Rain-fall ins.
1924	7.44	6.30	8.39	9.44	8.92	7.34	7.00	7.06	5.73	4.21	3.53	4.12	79.48	49.54
1925	5.52	4.65	7.71	7.96	7.37	7.41	7.78	8.44	5.55	6.36	4.71	5.46	78.92	19.89
1926	6.51	5.22	7.50	9.04	7.11	6.33	7.35	6.65	4.77	4.93	4.63	4.68	71.72	24.22
1927	5.25	5.11	7.85	7.52	5.67	5.64	7.13	7.80	5.76	3.75	3.54	4.04	69.09	34.67
1928	4.52	5.18	6.35	7.73	7.88	8.25	9.16	7.53	4.82	3.86	3.58	4.46	73.32	36.99
1929	4.73	4.98	5.79	7.86	9.40	8.27	9.74	7.36	4.41	3.57	3.19	3.42	72.72	23.08
1930	4.11	3.51	5.55	6.36	9.09	7.78	8.69	10.54	7.16	3.96	3.12	4.17	74.04	15.92
1931	4.17	4.46	5.79	8.19	8.20	6.39	6.26	8.32	4.00	3.52	2.95	3.76	66.01	36.63
1932	3.82	4.48	5.88	5.84	7.65	6.54	7.85	6.31	5.06	3.51	3.27	4.15	64.36	29.71
1933	4.48	5.05	5.59	7.60	7.79	5.35	7.78	5.60	3.98	2.78	2.95	5.48	64.43	85.93
Means	5.06	4.90	6.64	7.75	7.91	6.93	7.87	7.56	5.12	4.05	3.55	4.37	71.71	35.66

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HOLDINGS IMPROVEMENT COMPETITION, WEST ST. ANN AND LOWER TRELAWNY.

Mandeville,
20th April, 1934.

To the Board of Management.

Gentlemen,

Having completed the judging of the Prize Holdings' Competition in W. St. Ann and Lower Trelawny, I beg to submit my report.

The first inspection was carried out between 8th and 16th August, 1933, and the second between 3rd and 14th April, 1934. I visited 36 holdings on the first inspection and 24 on the second, twelve competitors having withdrawn. Of these, seven advised beforehand that it was their intention to withdraw, while five did not let us know until actually visited for final inspection, thus incurring loss of time and increasing travelling.

The interim between the first and second inspection was unusually rainy and caused much backwardness in the preparations of the holdings. This coupled with the scarcity of money caused many to withdraw, and in fact had not the Board of Management granted the privilege of an extension of time for preparations few would have competed. Of those that presented their holdings for judging 10 had not competed before, while 14 had. Twelve competitiors presented two pieces of land each for inspection and in most cases the second piece of land to be shown was some distance from the other. The remainder, however, presented one piece only. These holdings are located in the following districts:—

Granville, Gibraltar, Caledonia, Lime Tree Garden, Retirement, Providence, Watt Town, Aboukir, Thatcb Walk, Aenon Town, Borobridge and York Valley.

Although this competition has not achieved as much as may have been expected in substantial improvements in Fencing, Housing and Outbuildings, this is to be expected as the revenue of all holdings either large or small have been greatly reduced: therefore the competitors have mainly directed their efforts on the improvement of their soil fertility and acreage under cultivation also enlarging this acreage where necessary and possible, and rightly so.

Fences, etc.—Six holdings had gates and drawrails on my first visit. On my return three holdings had erected good gates and only six were without gate or drawrail. Repairs to fences and walls were carried out but the former did not appear very substantial. The outstanding

holding for work of the kind is Mr. . ". Samuels' of Gibraltar, who erected a wall the length of the frontage of his holding, capped and plastered it, also erecting pillars and gates.

Houses.—There was little improvement in this direction owing to the reasons I have already outlined.

Outbuildings.—Several pit latrines were completed during the time under review and minor repairs to outbuildings done. Nine holdings had their own water supply and fifteen had to depend on the public supply.

Curing and Storing.—Nineteen holdings had barbecues made of stones, etc., and were in good order, and five were without. The latter erect temporary barbicues when necessary, these holdings being chiefly in banana areas.

Manure and Mulch.—This sub-division of the competition may be regarded as its outstanding feature of productiveness. Pens of all descriptions are erected in the cultivations and nearly all stock on the holdings are kept in the cultivations in this manner, thereby applying manure to the fields, the general impression being that the best use of the stock is being made as far as the production of manure is concerned. There were also liberal applications of mulch to be seen on most holdings that needed such treatment. There can be no doubt that these settlers realize that their soil requires manure and it is cheaper to produce it than to buy.

Staple Crops.—This sub-division, like the preceding, shows substantial results and yet unlike in that the results are not so obvious. Crowded coffee cultivations are the chief drawback, though there is evidence of many of the fields being thinned out, yet not sufficently so. This condition does not exist in young fields and would suggest that the settlers recognize the error of thick planting yet are unwilling to face the difficulty where the old fields are concerned and correct it. Banana cultivation on clay soil was somewhat disappointing, as the depth and width of most trenches did not permit of sufficient drainage, etc. Yet on a nearby holding trenches of a desirable depth and width were seen and these trenches supplying what was required of them, yet the possessor did not apply that method of trenching on his other holding in spite of the object lesson.

Catch Crops.—These were plentiful and of good standard.

Live Stock.—Good use was being made of these as I previously explained and were well cared for.

Tools.—There was only one coffee pulper which I was able to record among the tools of competitors, pruning knives, saws and spades were also conspicuously absent, otherwise they were possessed of such tools as suited their needs.

I examined many samples of coffee, and these suggested that very primitive appliances were used in the handling of this very important crop. I therefore believe that if it were possible to introduce more modern tools (of a type that would be within the reach of those who needed them) for demonstration, the standard of this produce would be improved.

Attached herewith is my mark sheet with marks and premiums awarded.

(Sgd.) H. A. Darby,

Judge, W. St. Ann and Lower Trelawny Competition.

HOLDINGS IMPROVEMENT COMPETITION, W. ST. ANN AND LOWER TRELAWNY—MARK SHEET WITH PRIZE MONEY, 1933-34.

Name and Address of Competitor.		Marks in August, 1933.	Marks in April, 1934.	Increase per cent.	Premiums. £	s.	d.
1. H. Treasure, Lime Tree Garden	Watt Town P.O.	620	785	26.6	4	8	8
2. Hy. Richards, Lime Tree Garden	Brown's Town	615	740	20.3	3	7	8
3. J. E. Simpson, Gibraltar	Gibraltar	570	685	20.1	3	7	0
4. A. Ferriera, *Upper Retirement*	Watt Town	695	805	15.8	2	12	8
5. S. N. Samuels, Gibraltar	Gibraltar	640	740	15.6	2	12	0
6. Mrs. C. A. Campbell, Gibraltar	Gibraltar	545	630	15.6	2	12	0
7. John Lewis, Barracks	Borobridge	485	560	15.4	2	11	4
8. H. Campbell, Scarburgh	Alexandria	630	725	15.1	2	10	4
9. C. A. Higgins, Fullerton Pk.	Cave Valley	605	690	14.0	2	6	8
10. Mrs. I. Russell, Aboukir	Cave Valley	690	785	13.8	2	6	0
11. A. Coley, York Valley	*Borobridge*	475	540	13.7	2	5	8
12. Robert McLeod, Gibraltar	Gibraltar	660	745	13.0	2	3	4
13. Mrs. M. C. Walters, York Valley	Borobridge	670	750	11.9	1	19	8
14. J. B. Morrison, York Valley	Borobridge	680	760	11.7	1	19	0
15. Robt. Campbell, Lime Tree Garden	Watt Town	580	645	11.2	1	17	4
16. O. P. O'Gilvie, Granville	Falmouth	765	850	11.1	1	17	0
17. R. M. Gordon, *Retirement*	Watt Town	720	800	11.1	1	17	0
18. Mrs. A. V. Tomlinson, Borobridge	Borobridge	580	640	10.3	1	14	4
19. E. Howard, Lime Tree Garden	*Brown's Town*	570	620	8.7	1	9	0
20. Chas. McKoy, Lime Tree Garden	Brown's Town	540	585	8.3	1	7	8
21. B. Yorke, Upper Retirement	*Watt Town*	530	565	6.6	1	2	0
22. E. Spence, Providence	Brown's Town	640	680	6.2	1	0	8
23. D. J. Campbell, Lime Tree Garden	Watt Town	585	600	2.5	0	8	4
24. G. W. Wolfe, Eanon Town	*Borobridge*	490	500	2.0	0	6	8
					£50	2	0

(Sgd.) H. A. DARBY,
Judge of Competition.

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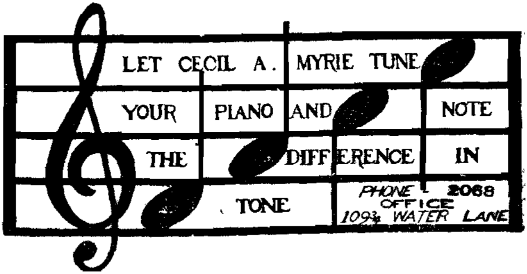

BRANCH NOTES.

All **Reports** received are acknowledged in this section of the Journal. This month we have only been able to put in print Notes from Branches who have not yet had a publication this year.

Branch Secretaries should **write on one side of the paper only.**

[Ed.

ST. ANDREW: Content Gap.—Meeting June 16. Present: Mr. Warner presiding and five other members. As matters arising from the minutes, a lengthy discussion took place regarding the price of coffee. The Secretary was advised to send another letter to the Instructor as the previous one had not been answered. Mr. L. M. Lyttle was appointed delegate to the half-yearly meeting. A resolution was brought forward re water supply. After a short deliberation, it was agreed that a petition should be drawn and signed by the taxpayers of the district to be sent to the proper authorities. The meeting then rose with the singing of the National Anthem.

F. A. Wilson,
Secretary.

St. Peters P.O.

Gordon Town.—Meeting held 26th May. Present: Mr. K. Clarke, President; Instructor Hanson, three visitors and twenty members. Some very inspiring lectures were given by Messrs. Eddoes, Woodward and Grant by which the members were greatly benefited. Very interesting points were gathered about the Blue Mountain Coffee and how it was sought after abroad; also preventing the spread of Panama Disease among our bananas. Correspondence re road matters was dealt with. The Instructor instructed members about the Soya Beans, also on Citrus and Coffee growing and urged every one to do their best. The President mentioned the importation of Turkeys and spoke on roads and their improvement. Two Authorised Persons reported all correct. The meeting terminated with the singing of the National Anthem.

Gordon Town P.O

(Miss) M. C. Duval,
Secretary.

ST. MARY: Baxter's Mtn.—Meeting June 19, 1934. Correspondence was read and it was noted that the Custos, Mr. Nash, (the Supt.), and Mr. Sawers, the Asst. Supt. of Parochial Roads, visited the No. 31 Road and took some notes. The President stated that the Panama Disease question had been threshed out and the One Root System reecommended and further developments in this connection are anxiously awaited. Election of Officers resulted in the re-election en bloc of the President, Treasurer, Secretary and Asst. Secretary. Messrs. A. A. Strachan, W. Dryden and M. Casey were elected to act as Vice-Presidents. Authorised Persons.—Reports from these Officers were received. Asst. Instructor Henderson visited the district at noon, and demonstrated in the School Garden on Coffee and Tomatoes. He also visited the holding of President S. W. Strachan and demonstrated on Coffee and Citrus. The members were favourably impressed with him. The National Anthem was sung and the meeting adjourned.

Annotto Bay

R. J. Lawson Ricketts,
Secretary.

Camberwell.—Meeting held June 15. There were fifteen persons and also Instructor C. V. Henderson. Arising out of the minutes was the matter of the formation of a Juvenile Branch. Mr. Henderson gave the necessary information and the teachers expressed willingness to co-operate in the movement. Correspondence was dealt with. Election of Officers resulted thus: President, Mr. F. N. Walters, 1st Vice-President, Mr. D. McCleary; 2nd Vice-President, Mr. L. Douglas; Treasurer and Secretary, Mr. A. E. Leo. Giscombe; Asst. Secretary, Miss M. E. Dunbar (the last two re-elected). The Instructor lectured on field sanitation. He dealt with Banana borer weevil and its ravages to the industry and advised correct methods of a control. At the close of his lecture, the thanks of the house were extended to him. After attending to some minor business, the meeting adjourned.

Annotto Bay.

A. E. Leo. Giscombe,
Secretary.

Mt. Angus.—Annual meeting held 6th June. Present were C. G. Evans, Esq., in the chair, Instructor L. D. M. B. Coke and fourteen others. Arising from the minutes, the members promised to support the Bank's Presentation Fund, and the Secretary was instructed to undertake the collecting of subscriptions. The Election of Officers resulted as follows: President, Rev. C. S. Brown; 1st Vice-President, Mr. C. G. Evans; 2nd Vice-President, Mr. G. Roche; 3rd Vice-President, Mr. S. J. Gordon; Secretary, Mr. V. D. Bailey; Assistant Secretary, Miss M. A. Hopkins; Treasurer, Mr. P. Evans. A Managing Committee was also named. Mr. W. S. Robinson gave an address on Co-operation of Branch members, developing his point very interestingly and leaving his hearers with

some solid truths to profit by. Mr. C. L. Stuart spoke on the usefulness of J. A. S. Branches. He shewed the benefits to be derived from wholeheartedly supporting the Society and spurred the members to greater efforts. Mr. Coke outlined plans for the development of Citrus especially in areas stricken with Panama Disease. Mr. G. Roche spoke on this too, as also how to get the most out of the Branch. He thanked the speakers, and promised to give a Lecture on Trenching at next meeting. Messrs. Evans, Roche and Gordon were appointed delegates to the Half-Yearly Meeting of the St. Mary Branches Associated, and Mr. V. A. Bailey, delegate to the Half-Yearly General Meeting in Kingston.

Gayle P.O. VICTOR BAILEY, Secretary.

Preston.—Meeting 27th June. Mr. C. C. Barrett presided. As arising from minutes, a statement by the retiring Secretary of the work done during the year ending 31st March, was presented. After some discussion, it was decided that as the Parochial Board, Port Maria has not taken any direct steps in the matter of the water supply a letter be sent to the Hon. H. E Vernon, humbly requesting his visit to this part of the district. In reply to a question re one root treatment of Panama Disease, Mr. I. A. Amiel gave a short report of the conference held at High Gate on the 23rd inst. Other matters were dealt with after which the singing of the National Anthem brought the meeting to its close.

Bonny Gate P.O. ISAAC A. AMIEL, Secretary.

Rock River.—Annual meeting 25th June. Present: 12 members and some visitors, also Instructor C. D. V. Henderson. As arising from the minutes, the President emphasised the duty of members to visit and bring out other members. He also spoke on the uses of the demonstration plot and urged members to visit it, as the Instructor spent a good time there. The following were elected to serve for the ensuing year: Mr. A. V. Ross, President, re-elected; Messrs. C. Bailey, E. Livingstone and E. B. Ross, 1st, 2nd and 3rd Vice-Presidents, respectively; Mr. J. A. Bowen, Secretary, re-elected, Miss V. O. Mckie, Asst. Secretary, and Mr. A V. Ross, Treasurer. The Instructor next spoke on the general outlook of cultivation in St. Mary. He encouraged those present to cultivate coffee along with their bananas and promised to give some instructions with regard to the cultivation of coffee on his next visit. Everybody was pleased with the Instructor's remarks and many members gave their views. After the singing of the National Anthem, the meeting adjourned.

Mt. Regale P.O. *J. A. BOWEN*, Secretary.

Wood Park. Meeting 13th June The school-room was crowded with members and visitors. There were representatives from the Mt. Angus, Lucky Hill, Carron Hall and Blackstonedge Branches. Mr. W. S. Robinson occupied the chair, and among those present were: Hon. T. J. Cawley, 1st Vice-President of the Parent Society, Mr. Glaister-Baxter, General Secretary, Instructor L. A. M. B. Coke, Mr. S. M. Roche, J.P. Correspondence was read. The President gave his retiring address which was very comprehensive. Mr. V. A. Bailey then gave a humourous recitation. The Secretary gave his annual address followed by the Treasurer's report. A vote of thanks was accorded these three officers. The election of officers resulted as follows: President, Mr. W. S. Robinson; 1st Vice-President, Mr. S. M. Roche; 2nd Vice-President, Mr. E. L. Silvera; 3rd Vice-President, Mr. C. O. Wellington; Treasurer, Mrs D. M. Stuart; Secretary, Mr. C. L. A. Stuart; Asst. Secretary, Mr. L. L. Simmonds. A Managing Committee was also appointed. President congratulated Mr. C. S. Boyd on the honour conferred on him by the Governor in appointing him a Justice of the Peace. Mr. Boyd suitably replied. Mr. Cawley on being asked to speak, congratulated the Branch on the splendid turn out and touched on several subjects of vital importance to Agriculturists. He mentioned Banana Insurance and said in his opinion a Doomsday Book of Banana Planters should first be got out. He mentioned the proposed change in the method of treating Panama Disease, i.e., the one-root system. He mentioned that there was a good deal of land under cultivation that is not suited to the crop grown. He advocated intensive instead of extensive cultivation and urged all to make use of the Agricultural Instructors. He said every Branch should start a Juvenile Branch. He urged the people to get as much book learning as possible but not to neglect agricultural education. A hearty vote of thanks was conveyed to Mr. Cawley. Mrs. Young unveiled an "Agricultural Organ" which turned out to be a collection of fruits so arranged as to create perfect harmony. Mr. Baxter asked to speak said the Branches had a definite duty—to show initiative and that agricultural activities should be new and not on the old lines. He mentioned two ways to get over disasters (1) to replant the worst fields, (2) to force on the best acreage by using fertilizers which add quality to the fingers of bananas as well as bringing the fruit to maturity quicker. It is essential to have diversity of crops. In St. Mary, we should try citrus and coffee. Coffee, though a difficult crop

for the big man on account of labour, is a splendid crop for the small settler and can be regarded as an heirloom to the family. He mentioned that there were many crops which cannot be marketed directly but by feeding to animals and that no small holding was complete without an animal of some sort to provide manure. He suggested that the Branch should experiment with fertilizers and he promised that any amount of fertilizer bought by the Branch or by individuals up to 250 lbs. in weight, the Society would give an equal amount free. He had been experimenting with 12.8.8 (nitrogen, phosphoric acid and potash), ¾ lb. to a root. He thinks the time fertilizers are applied has a lot to do with the results obtained. He appealed to the Branch not to have meetings only, but a definite policy. Mr. Coy moved a vote of thanks and in doing so presented the Branch with two suckers of the Highgate Banana. Mr. Vermont made a few criticisms of the Society. Mr. Silvera spoke on Banana Insurance and the weighing of trucks.

Mr. C. L. A. Stuart was elected delegate to the Half-Yearly General Meeting. The Rev. R. C. Young made a few remarks, and Mr. S. M. Roche moved a general vote of thanks. The meeting closed with the singing of the National Anthem.

Pembroke Hall P.O. C. L. A. Stuart,
Secretary.

HANOVER: Lethe.—Meeting held 27th June. Present were: Saml. Grubb, Esq., presiding; C. C. Hastings, Instructor, P. St.L. Bacquie, Supervisor of Instructors; and over thirty members. Correspondence advising affiliation of the Branch with the Parent Society was read. A lengthy discussion on the necessity of a Post Office for the district took place and the Secretary was instructed to forward a resolution on the subject to the Board of Management. The Supervisor stressed the importance of growing coffee, tomato and corn in lieu of banana which is so much menaced by Panama Disease. Attention was called to the fact that sick and destitute people on the Hanover side of the Lethe district got no medical aid from the D.M.O. for St. James in spite of the fact that these people live within his medical district. The Instructor gave very useful hints on catch-crops and deprecated the extensive cultivation of yams which bring so little remuneration. After discussing the arrangements and fixtures for the prospective Agricultural Show and Exhibition on the Unity Hall Grounds, the meeting was brought to a close by the singing of the National Anthem.

Anchovy P.O. C. E. Wilson,
Secretary.

Hopewell.—Meeting 1st June. Present were: Major Pease, member of the Board of Management of the J.A.S., Hons. A. C. Barnes, Director of Agriculture, T. J. Cawley, Vice-President J.A.S.; Mr. Glaister Baxter, Secretary J.A.S., and Mr. P. St.L. Bacquie Supervisor of Instructors. Mr. Atherton, President of the Branch, Mr. Hastings, Instructor, the Secretary and about forty members and visitors. Three delegates were appointed to attend Half-Yearly Meeting of Hanover Branches Associated. Correspondence was dealt with. Major Pease introduced the Director of Agriculture, who gave a brief and interesting address in which he deprecated the bad practice of cultivators who ruthlessly cut down trees from steep hillsides and carried on cultivation on such a scale as to court disaster. Hon. Cawley spoke of the dignity of labour and the necessity for Juvenile Associations whereby boys and girls could be trained to find pleasure as well as profit in Agriculture. He advised members to go in for vegetable and citrus culture instead of depending upon "King Banana." Mr. Baxter advised the acquiring of more agricultural knowledge. Members, he said, should continue producing a crop even if there was no market, as for instance corn and breadfruit could be used for feeding pigs which could be sold in the form of meat. The thanks of the Branch was accorded each speaker. The Fair and Show to be held at Unity Hall on Emancipation Day was discussed and the meeting adjourned.

Hopewell P.O. C. S. Morrach,
Secretary.

TRELAWNY: Spring Garden-Rock Spring.—Meeting 14th June. Present: Mr. W. A. MacDonald, President, F. W. Kelly, Instructor and 29 others. The Instructor gave an interesting lecture on the needs of the district and said that efforts will have to be made to improve the breed of small stock. Twenty-five persons qualified as members. The meeting was brought to a close by the singing of the National Anthem.

Albert Town. L. Coy,
Secretary.

Wait-a-Bit.—Meeting June 13. Present: Mr. V. C. Robotham, President; Mr. F. W. Kelly, Instructor; 10 members, 4 visitors and the Secretary. It was agreed to purchase with the reserve funds of the Society (1) a lamp, (2) a mattock for the Society's use. Correspondence re Half-Yearly Meeting was dealt with. The President had a friendly and encouraging talk with the members re the purpose the Society is serving, and how they may help to increase its membership. The Instructor's very inspiring and explicit

address on (a) *Soil culture*, (b) *Banana borers*, (c) Improvement of the breed of small stock, (e.g. goat) for the benefit of milk, held the house spell-hound, and at the close he gave further information, and arranged to assist members in this line. He was very heartily thanked and asked to continue the lecture at a subsequent meeting. The meeting was brought to a close by the singing of the National Anthem.

Wait-a-Bit P.O. I. L. RODGERS,
Secretary.

ST. THOMAS: Hagley Gap—*Meeting* 23.6.34. The *President was in the Chair*. Road question was discussed and it was ultimately agreed that the matter be referred to Mr. J. H. Watts. Messrs. Gordon and Gilroy, delegates to the meeting of the Associated Branches at Morant Bay gave a lucid account of the meeting. Both gentlemen were thanked. Mr. C. A. Campbell was appointed delegate to the Half-Yearly General Meeting. The members agreed to make a special effort to contribute a 6d. each towards the buying of a bell for the use of School and Church. Authorised Persons gave their reports and the meeting came to a close by the singing of the National Anthem.

Hagley Gap P.O. J. B. HEYWOOD,
Secretary.

Middleton.—Meeting June 4. There were *eight members present*. The Secretary reported on the Branch's work during the financial year. The Treasurer also gave a report on the finances. .The election of officers resulted as follows:—President, Mr. E. S. Blake; 1st Vice-President, Mr. T. E. Samms; 2nd Vice-President, Mr. J. E. Johnson; Secretary, Miss M. A. Blake; Treasurer, Mrs. C. S. Parkins. The officers promised to do their best. The *meeting terminated*.

Seaforth P.O. M. A. BLAKE,
Secretary.

Report of the monthly meeting held June 20 is acknowledged.

Ed.

ST. ANN: Brittonville.—Meeting 20th June. Present were: H. S. Martin, President, six other members, C. V. Atkinson (Inst.) and a few visitors. Arising out of the minutes, the matter of (i) *Rat Campaign*, (ii) *Authorised Persons*, (iii) *Delegates* were dealt with. Correspondence was dealt with. The Instructor gave a very appreciative address on the rearing of small stock. A vote of thanks was accorded him. Authorised Persons reported all correct. A successful meeting terminated with the singing of the National Anthem.

Claremont P.O. C. THOMAS,
Secretary.

Bohemia.—*Annual meeting* 31.5.34. Present: *Instructor Kelly, all the officers of the* Branch and a fairly large number of members. Arising from the minutes, the getting of a Branch of the Govt. Savings Bank at Lorrimers P.O., was discussed. Correspondence was dealt with. The President, Secretary and Treasurer gave their annual reports. The financial report showed a small balance in hand. The officers were thanked for their services. The election of officers resulted as follows: President, J. B. Graham; 1st Vice-President, Edward A. Smith, 2nd Vice-President, Edwin Smith; 3rd Vice-President; S. Levi; Secretary, V. C. Robinson; Treasurer, C. A. Williams. The officers promised *faithful* service. A Business Committee was nominated. Minor matters were dealt with and the meeting concluded.

Lorrimers P.O. C. ROBINSON,
Secretary.

ST. ELIZABETH: *Brompton.—Meeting* 31.5.34. Twelve members were present and some visitors. Four new members were elected. A resolution re Juvenile membership was brought forward. The President said the Water Supply was receiving consideration. The delegates gave a very interesting report of the Half-Yearly Meeting held at Santa Cruz. They were thanked. Apology was received for Instructor's absence. The Billy was reported in good order. The singing of the National Anthem terminated the meeting.

Fyffes Pen P.O. E. A. WATSON,
Secretary.

Barbary Hall.—Meeting 6th June. Present: Messrs. C. B. Powell, President; H. W. Lynch, Instructor; L. A. Virtue, Asst. Instructor, ten other members and two visitors. A letter from the Parent Society re Half-Yearly Meeting was dealt with. The President in his address gave suggestions for stimulating interest in the Society. Mr. Virtue was introduced and warmly welcomed. He gave a very helpful address on the treatment of domestic animals for which he was heartily thanked. The Instructor emphasized the points *stressed* by Mr. Virtue and *encouraged the members to support the proposed*

Agricultural Show at Gilnock. A debate was planned for the next meeting. The singing of the National Anthem brought a very profitable evening to a close.

Mountainside P.O. D. S. BAILEY, Secretary.

Springfield.—Meeting 1st June. 17 members and one visitor who subsequently became a member were present. Arising out of the correspondence, it was decided to defer discussion on pigs and also to ask the Instructor to make a note to report on the forthcoming Half-Yearly Meeting to be held in Kingston, as this Branch had no resolution to send. The Secretary gave a report on the Half-Yearly Meeting of the Associated Branches. Many of the members who attended that meeting said they learnt that better prices would be got if members took the trouble to get the best seeds to grow the best kinds of produce, store the produce well and get a proper representative to advertise these products. Good sires not only produce better progeny but take less labour with better results and these would be the means of keeping in the Island some of the money sent abroad to bring in commodities we could produce. It was stated that places used for sale of foodstuffs were insanitary and that storekeepers and vendors sometimes sold things wholly unsuited for human consumption. It was decided to notify the Sanitary Inspector. It was agreed to form a Juvenile Branch. The National Anthem brought the proceedings to a close.

Springfield P.O. J. A. WOODSTOCK, Secretary.

ST. CATHERINE: Brown's Hall.—Annual Meeting June 5. There was a splendid turn-out of members and an unusually large number of visitors. Mrs. Tulloch, one of the delegates to the Half-Yearly Meeting of the Associated Branches gave a very interesting report. Mr. J. M. Gregory, M.P.B., reported that there was an early prospect of the establishment of the long desired Parochial Dispensary to serve Brown's Hall and surrounding districts. The President carefully reviewed the year's work and urged increased activities. The Treasurer's report was taken and Mrs. Tulloch thanked for her faithful services as Treasurer. The Annual Report gave a vivid picture of shortcomings during the past year and stimulated renewed effort for the coming year. Much appreciation was expressed to both the Retiring President and Secretary. Election of Officers resulted in the unanimous re-election of the former officers. A Managing Committee was also named. The Authorised Persons gave their reports and their badges and hand-cuffs were examined. Praedial Larceny especially of bananas was reported to be rampant. There was a move to form a branch of Women's Agricultural Auxilliary. Mrs. M. Hart was asked to he organiser and to report at the next meeting. The Secretary generously offered to present a cooking stove as soon as the membership reached fifty. The Instructor gave a fine address on the value of manure and urged members to keep up the grade of their bananas. The National Anthem brought a very profitable meeting to a close.

Brown's Hall P.O. W. STANLEY JONES, Secretary.

Kentish.—Meeting held 25th June. Present: Messrs. H. Oliver, President; Assistant Instructor C. L. Byles, 21 other members and lots of visitors. The Asst. Instructor was welcomed. The formation of a Penny Bank in the district for the benefit of the younger folks was dealt with and the teacher, Mr. S. W. Thomas was asked to take up the matter. The Instructor, Mr. Byles expressed pleasure to be amongst the Kentish folks for the first time. He gave a very warm address which was spiced with humour. He stressed the importance of the planting of permanent crops which would serve as the pension for the agriculturist. A vote of thanks was moved to the Instructor. Miss Blake, the Secretary of the Juvenile Branch reported on their last meeting. The Delegates who attended the Annual Meeting at Bog Walk gave their reports for which they were heartily thanked. One delegate was also appointed to attend the Half-Yearly General Meeting. Minor matters were dealt with, and the singing of the National Anthem brought the meeting to a close.

Ginger Ridge P.O. S. W. THOMAS, Reporting Secretary.

MANCHESTER: Mile Gully.—Meeting 15.6.34. Present: the President, 14 members and a visitor. The Spray Pump was again discussed and one member promised to subscribe to the Fund. Rev. Canon Evelyn became a member. Two Authorised Persons reported "all correct." Delegates to the M.B.A. gave their reports. Very interesting addresses were given by Messrs. Thelwell and McKay on "Stock Rearing," and Mr. Thelwell's address on the "Pig" was very interesting. An address was read to the departing President at whose departure all expressed profound regret. The President thanked the members for their kind expressions and good wishes. Mr. G. S. Morgan was duly elected to represent this Branch at the Half-Yearly Meeting. Mr.

A. F. Clarke gave an interesting talk on "Tomato growing and spraying" and gave as an example his patch of 1 square chain and its yield of 4,000 lbs. He strongly advised manuring and spraying to get the best results. He was warmly thanked. The meeting terminated with the singing of the National Anthem.

Mile Gully P.O. F. A. MORRIS,
Secretary.

CLARENDON: Toll Gate.—Meeting June 28th. Present: the President, Mr. L. Logan, Instructor W. L. Shirley, Mr. U. Theo. McKay, 21 members and 9 visitors. Mr. McKay gave a very impressive address on the subject. "Cast down your bucket where you are." Next Mr. Shirley gave an interesting address on "Cashew Marketing."

Three new members were enrolled. Resolutions were drawn up and an interesting meeting terminated with the singing of the National Anthem.

Toll Gate P.O. (Miss) M. L. HALL,
Secretary.

Croft's Hill.—Meeting held 14th June. Present: Rev. O. T. Johnston, President, 18 members and some visitors. A very cordial welcome was extended to Mr. C. S. Byles, the new Assistant Instructor. The minutes, matters arising therefrom and correspondence were dealt with. Miss E. A. Downie was elected delegate to the Half-Yearly Meeting. Three Authorised Persons reported "All Correct." Badges and handcuffs were in order. Matters affecting the locality were discussed. The Instructor who was in the district for the day, demonstrated budding in the school-garden and the Society's Citrus Nursery. He gave a very interesting lecture on Crops, the seriousness of Diseases, the seriousness of Markets, and the seriousness of the Soil. He was accorded a very hearty vote of thanks. After the enrolment of new members, the meeting terminated with the singing of the National Anthem.

Croft's Hill P.O. (Miss) E. A. DOWNIE,
Assistant Secretary.

Grantham.—Meeting held June 25th. Present: Messrs. Francis Smicle, President and other members, also Instructor M. N. Thompson. After the usual preliminaries, correspondence was read and dealt with. Letter from the Parochial Board re Footbridge across the Rio Minho was thought very unsatisfactory in consequence of which a resolution was passed to be sent to the Parent Society. Mr. L. G. Johnson was elected delegate to the next Half-Yearly Meeting. The Instructor addressed the meeting on the growing of crops. He received a vote of thanks. Authorised Persons gave their reports. It was brought to the notice of the meeting that Praedial Larceny is on the increase and these men should be more viligant. A resolution re Agricultural Headmen was passed to be sent to the Half-Yearly Meeting. Minor matters were dealt with and the National Anthem brought the meeting to its close.

Grantham P.O. AUG. THOMAS,
Secretary.

Orange Hill.—Meeting 27th June. Present: Mr. R. S. Murray, Chairman, 2 officers and members, and Mr. M. N. Thompson, the Instructor. The President gave a "Message" to the members advising that permanent plants such as coffee, oranges, cocoa, etc., be not planted nearer than 6 ft. to any road. He gave reasons and was thanked for the address. The Instructor in his address touched on many points but concentrated on the Sugar-cane dealing with many important points and answering many questions on the subject. He was thanked. The Authorised Persons reported. A number of other matters were dealt with, e.g., Water Supply, Roads, Post Office, Removal of Grindstone, Delegate to Half-Yearly Meeting, Attendance at Agricultural Meeting at Frankfield at which the Director of Agriculture will be present on the 29th. The National Anthem brought the meeting to its close.

C. S. RICKETTS,
Secretary.

Wilbury, Lemon Hall.—Meeting 12th June. Present: Messrs. C. H. Davis, President, six other members, ten of the bigger school children. It was pointed out that for some months now the Branch has been agitating for the improvement of the Parochial Road, No. 46 leading from British to Wilbury and that promises were made for a visit from the Parochial fathers, but up to now nothing definite had been done. It was agreed that the Parochial Board be asked to receive a deputation from the Branch on the subject. It was further agreed that a Committee interviewed the landowners through whose property a proposed deviation may be made with a view of getting gifts of lands. The Secretary advised the planting of P.O.J. 2878 and P.O.J. 2725 varieties of cane. Minor matters were discussed and the meeting closed with the National Anthem.

Croft's Hill P.O. I. B. PRINCE,
Asst. Secretary.

PORTLAND: Balcarres.—Meeting held 23.5.34. Present: Mr. F. E. Nesbitt, presiding, 11 other members and the Secretary. The President said he understood that an effort was being made to plant some of the Panama Diseased areas in Portland with sugar cane. The President said no organization in the Island could supersede the Agricultural Society, therefore he is urging an increased membership, thereby evincing greater achievements. To interest members and non-members alike, a local competition was suggested. Authorised Person Barnes reported an attempted arrest. Notices of motion for next meeting were given re:—(1) Quicker money transportation system; (2) Branch Parochial Road from "Found Out;" joining Labour Hill—Mt. St. Bernard Parochial Road; (3) Bad condition of Mt. Pleasant Gap road; (4) Better protection of water at "Pump Hole," Balcarres. After minor matters were dealt with the meeting closed.

Balcarres P.O. (Mrs.) A. V. NESBITT, Secretary.

Report of Annual Meeting held 25.5.34, is also acknowledged.

Ed.

Fellowship.—Meeting held June 6. Present: Mr. A. J. Corrie, President, Instructors Messrs. G. R. Graham and D. A. Jones, Mr. J. B. Sutherland, Inspector of Plant Disease, and a good turn-out of members and visitors. The President introduced the new Instructors. They were heartily welcomed by the Rev. W. A. Thompson and replied suitably. As arising from correspondence, Mr. C. A. Smart was elected delegate to the Half-Yearly Meeting. Resolutions re the planting of sugar canes on lands abandoned on account of Panama Disease and re the growing of Virginia Tobacco were advised to be sent to the Half-Yearly Meeting. One Authorized Person reported no arrest. Mr. Uriah Cole was nominated as an Authorized Person. Instructors Graham and Jones and Mr. Sutherland gave very helpful addresses, stressing greatly the necessity for putting in citrus and other plants in place of the banana which is being wiped out by Panama Disease. They made reference to Mr. C. A. Smart who had gone largely into the growing of citrus, as setting a good example. The members were informed that citrus plants were available at 3d. each and that they place orders now. Mr. Smart spoke of the care necessary in the growing of citrus and offered to present a spray to the Society. These gentlemen were heartily thanked for their words of advice and encouragement. The singing of the National Anthem brought a well spent evening to a close.

Fellowship P.O. (Mrs.) K. V. CORRIE, Secretary.

Skibo.—Meeting June 4th. Present: I. Pryce, Esq., Chairman, fifteen other members and three visitors. The Secretary was instructed to re-invite the Hon. T. C. Geddes, Custos of the parish to next meeting, as also the Rev. W. J. Thompson. The need for a Government Saving's Bank in the District was re-discussed. Authorized Person Mr. J. Reid, reported on work done. A concert on behalf of the Branch was fixed for July 24th. Minor discussions followed and the meeting terminated with the singing of the National Anthem.

Skibo P.O. R. C. WATSON, Secretary.

Minutes of May meeting also acknowledged.—Ed.

Craigmill.—Meeting 5th June. Present: Messrs. J. T. Lowe, President; nine other members and a few visitors. Correspondence was read and discussed. The Secretary was appointed delegate to the coming Half-Yearly General Meeting. Three Authorized Persons present had nothing to report. Mrs. M. Sykes and Mr. L. T. Lawrence were elected Second and Third Vice-Presidents. Mr. Arthur Lowe spoke of the necessity of co-operation with the Belvedere Branch, and suggested a united function to raise funds for both Branches. After a short discussion on the matter, the Secretary was asked to write the Belvedere Branch about it. The President gave notice of motion re the Syke's Land Road for next meeting. The singing of the National Anthem terminated the meeting.

Buff Bay P.O. (Rev.) T. LAWRENCE, Secretary.

Moore Town.—Meeting 4th June. Present: Mr. J. E. Harris, President, Instructors G. R. Graham and D. A. Jones and a goodly number of members and visitors. The President introduced the Instructors to whom a hearty welcome was extended. Mr. Graham, the senior Instructor appropriately acknowledged the expression of welcome. Mr. Anglin was appointed delegate to the Half-Yearly Meeting. The Authorized Persons reported on their work. The Instructors addressed the meeting. Both addresses were well received. The meeting closed with the singing of the National Anthem.

(Miss) J. A. HARRIS, Assistant Secretary.

Other Reports Received.

Branch.	Date of meeting.	Attendance.	Business.	Secretary.
Hanover.				
Askenish ..	4.6.34.	Over 20	Appointment of delegate to General Meeting. Road matters.	F. I. Gunter.
Cascade ..	..	..	Annual Meeting. Election of Officers. Report of Meeting of Parish Association.	D. A. Webster.
Westmoreland				
Beeston Spring	22.6.34.	11	Presentation of prizes re White Yam Competition. Report of Parish Association Meeting. Lecture by Instructor Wray.	C. T. Samms.
St. Catherine.				
Buxton Town ..	20.6.34	..	Delegate to General Meeting. Lecture by Instructor Byles.	A. B. Walters.
Bellas Gate ..	11.6.34.	Over 60	Report of Parish Association Meeting. Appointment of delegate to General Meeting. Addresses by Mr. E. N. Brown on afforestation and Mr. Baxter.	A. A. McCurdy.
Springfield ..	22.5.34.	10	Annual Meeting. Election of Officers. Appointment of delegate to Parish Association Meeting.	S. T. Young.
Sligoville ..	6.6.34.	28	Appointment of delegate to General Meeting. Address by Instructor Martin.	E. B. Reid.
Troja ..	12.6.34.	Over 30	Medical facilities. Appointment of delegates to Parish Association Meeting. Addresses by Instructors Martin and Byles.	A. S. Christie.
St. Mary.				
Belfield ..	12.6.34.	20	Election of Officers. Appointment of delegates to Parish Association Meeting. Address by Instructor Henderson	M. L. Rennalls.
Oxford ..	19.6.34.	7	Election of delegates to Parish Association Meeting.	Mrs. R. A. Thomas.
Epsom ..	6.6.34.	11	Appointment of delegate to General Meeting.	F. A. Edwards.
Mt. Regale. ..	1.6.34.	13	Delegates to General and Parish Association Meetings appointed. Address by Instructor Henderson.	T. H. Hannam.
Marlborough ..	26.6.34.	13	Authorized Persons. Address by Instructor Henderson.	D. A. Ford.
St. Elizabeth.				
Bull Savanna ..	1.6.34.	..	Bombay Mango Industry. Appointment of delegate to General Meeting. Addresses by Instructors Lynch and Virtue.	(Miss) E. C. Royal.
Kilmarnock ..	12.6.34.	109	Road. Address by Instructor Wray. Pimento Disease Juvenile Branch.	J. E. Monteith.
Malvern ..	22.6.34.	24	Report of Parish Association Meeting. Appointment of delegates to General Meeting. Show. Addresses by	(Miss) E. I. Blake.

Other Reports Received, Contd.

Branch.	Date of meeting.	Attendance.	Business.	Secretary.
Clarendon. Brandon Hill ..	18.6.34.	About 40	Social Committee Banana Industry. Appointment of delegates to General Meeting. Address by Instructor Shirley.	(Miss) E. A. Graham.
Crooked River	8.6.34.	14	Treasurer's Report. Appointment of delegate to General Meeting. Report of Parish Association Meeting.	A. M. Smith.
Moravia	5.6.34.	.	Road Secretary's Report. Election of Officers.	J. E. B. Scarlett.
Mitchell's Hill	21.6.34.	17	Small Stock. Roads. Appointment of delegate to General Meeting.	(Miss) M. L. Robotham.
Pleasant Valley	20.6.34.	21	Appointment of delegate to General Meeting. Address by Instructor Shirley.	A. A. Flyter
Portland. Bybrook .	14.6.34.	9	Juvenile Branch. Local Post Office.	(Miss) J. V. Watson.
Claverty Cottage ..	9.6.34.	12	Yam Competition. Road. Addresses by Instructors Graham and Jones.	W. T. McKay.
Cooper's Hill ..	*26.6.34.*	..	*Appointment of delegates to Parish Association Meeting. Road. Addresses by Instructors Graham and Jones*	*J. S. Davis.*
Maidstone ..	*14.6.34.*	36	*Cane Industry. Coffee. Addresses by Instructors Graham and Jones.*	*M. L. I. Williams*
Central *Portland* ..	26.5.34.	..	Cane Industry. Panama *Disease. Addresses by* Hon. K. V. Abendana and Mr. C. Gray also Instructor Graham and Jones.	Stanley T. *Young.*
Rock Hall ..	*18.6.34.*	28	*Appointment of delegate to* General Meeting. Authorized Persons. Addresses by Instructors Graham and Jones..	*L. Morgan.*
Tranquility ..	20.4.34.	..	Annual Meeting. Treasurer's and Secretary's reports. Election of Officers.	N. W. McCleary.
Manchester. *Comfort Hall* ..	*8.6.34.*	23	*Appointment of delegate to* General Meeting. Address by Instructor Kelly.	W. A. White.
Pratville ..	11.6.34.	..	Authorized Persons.	D. E. Dixon.
Trelawny. Deeside ..	6.6.34.	..	Yaws. Cane Industry. Address by Instructor Kelly.	E. Morle..
St. Ann. *Ocho Rios* ..	26.6.34.	..	Report of Parish Association Meeting. Coconut Disease. Address by Instructor Atkinson.	(Miss) B. A. Jackson.
Pedro ..	30.5.34.	..	*Formation of Parish Association of Branches.* Address by Instructor Atkinson.	C. L. Beckford.
St. James. Roehampton ..	9.6.34.	16	Report of Parish Association Meeting. Water Supply. Election of delegate to General Meeting.	S. A. Rhoden.
St. Andrew. Rock Hall ..	18.6.34.	12	*Report of Parish Association* Meeting. Relief work.	(Mrs.) Bertha Heslope.

THE JOURNAL

OF THE

Jamaica Agricultural Society.

The more people do the more they can do; he who does nothing renders himself incapable of doing anything; while we are executing one work we are preparing ourselves for undertaking another.

Vol. XXXVIII. AUGUST, 1934. No. 8.

BOARD OF MANAGEMENT.

The regular monthly meeting of the Board of Management of the Jamaica Agricultural Society was held at the office of the Society, 11 North Parade, Kingston, on Wednesday the fourth July, 1934, at 11.30 a.m. There were present: The Hon. T. J. Cawley, First Vice-President, presiding, Rev. W. J. Thompson and Hon. G. Seymour Seymour, Second and Third Vice-Presidents, Hon. A. C. Barnes, Director of Agriculture, *ex-officio*, Messrs. H. E. Lewis, T. P. V. McDaniel, U. Theo. McKay, D. D. Phillips and W. H. W. Westmorland, Major G. B. Pease, Mr. P. St. L. Bacquie, Supervisor of Instructors and the Secretary, Glaister Baxter.

Apologies for Absence.

Apologies for absence were submitted from Messrs. C. O. Cover, W. Harper Watson and T. R. Williams.

Confirmation of Minutes of the previous Meeting.—

The minutes, copy of which had been sent to each member of the Board were taken as read, and on the motion of Mr. Thompson, seconded by Mr. McDaniel were confirmed.

Matters arising out of the previous Minutes.

(a) *Statement by Secretary.*—The Secretary presented the following statement:—

3rd July, 1934.

Gentlemen,

The reply approved by the Board with reference to the Provident Scheme has been sent to the Hon. the Colonial Secretary.

Instructions have been given to the five Instructors who were to start out working in zones, to make preliminary survey before starting actual work. These surveys will provide the following information:—

(a) The occupiers of holdings.
(b) Approximate size of holdings.
(c) Particulars of agricultural crops, pastures and livestock.
(d) Whether owner is or is not a member of the Society (*Branch or Direct*).
(e) If neither his willingness to join the Society.
(f) Whether he desires our assistance or not.
(g) If our assistance is desired, in what particular directions.

All other routine correspondence consequent on the last meeting of the Board has been carried through.

(Sgd.) GLAISTER BAXTER,
Secretary.

(b) *Banana Insurance: Further report from Committee.*—The Chairman of the Committee stated that he had only shortly before the present meeting received the draft copy of the report and had not had an opportunity of going through it.

The matter was deferred to the next meeting.

(c) *Mr. McKay's motion re Planning Committee.*—The following resolution, notice of which was given at the previous meeting was moved by Mr. McKay, seconded by Rev. W. J. Thompson and unanimously carried.

"There shall be a Planning Committee for the purpose of planning the work of Instructors and the organization of Instructoral Districts, consisting of five members of the Board of Management, three to form a quorum."

(d) *Report from Supervisor re Instructor Thompson and Potato Blight in Manchester.*—The Chairman stated that the Instructors Committee had that morning discussed this matter and suggested that their recommendation be considered.

The Board agreed and the following was read: as part of the Instructors Committees report,—"Correspondence with reference to the potato blight situation in Manchester was considered, and your Committee considers that the correspondence reflects on the conduct of Instructor Thompson so seriously that the matter should be more carefully enquired into by a Committee specially appointed for the purpose. Such a Committee should be empowered also to enquire generally into Mr. Thompson's conduct and competence."

On the motion of Mr. Thompson, seconded by Mr. Westmorland, the recommendation of the Instructors Committee was adopted.

On the motion of Mr. Thompson seconded by Mr. Lewis, it was decided that the enquiry should be held in the Instructoral district.

The following were appointed members of the Committee, three to form a quorum:—Hon. T. J. Cawley (Chairman), Messrs. H. E. Lewis, U. Theo. McKay, T. P. V. McDaniel and D. D. Phillips. The Secretary to act as Secretary of the Committee.

Leave: Application from Major G. B. Pease.—

Application from Major Pease for two months leave as from the 8th August, was submitted. The leave was granted, the Board expressing the hope that Major Pease would have an enjoyable holiday.

Statement of Accounts.—

(a) *Statement for May.*—The Secretary stated that the statement for May had appeared in the minutes circulated to the Board.

(b) *Statement for June* was submitted as follows:—

STATEMENT OF ACCOUNTS FOR JUNE, 1934.

Receipts.	Estimates. £ s. d.	Total. £ s. d.
To Subscriptions	175 0 0	85 3 2
Affiliation and Journal Fees	175 0 0	84 19 3
Advertisements in Journal	200 0 0	18 3 6
Bank Interest and Sundries	10 0 0	2 11 3
Miscellaneous	10 0 0	..
Bee Industry Sales	30 0 0	15 4 11
Sales Dept. Profits, 1934-35	400 0 0	..
Government Grant	9,500 0 0	2,375 0 0
Grant for Bee-keeping Industry	500 0 0	..
Appropriation from Sales Dept. Surplus	516 15 0	..
	£11,516 15 0	£2,581 2 1

Receipt.	Estimate.	Total.
Balance from 31st March, 1934	..	1,877 4 8
Nethersole Presentation Fund	..	0 2 0
Entrance Fees: Holdings Competitions ..	..	3 7 0
Refunds of Advances	..	162 15 0
Seeds Trading Account	..	1,104 1 11
		5,728 12 8
Less Expenditure per contra ..	..	4,649 12 4
Balance	..	£1,079 0 4
Cash in hand	£12 13 9	
Cash at Barclay's Bank (D.C. & O.) Current A/c	662 5 8	
Cash at Royal Bank of Canada Current A/c	404 0 11	£1,079 0 4

Expenditure.	Estimates. £ s. d.	Total. £ s. d.
By Personal Emoluments—		
Secretary and Office Staff	2,014 5 0	514 5 0
Instructors and Supervisor	7,482 10 0	2,039 15 10
Instructors' Course at Hope	125 0 0	
Instructors' Contingencies	100 0 0	40 15 8
Secretary's Office and Special Travelling ..	100 0 0	43 16 2
Printing and Stationery	100 0 0	41 6 4
Printing and issuing Journals and Reports ..	750 0 0	11 11 4
Rents and Rates	58 0 0	13 2 5
Rent of Telephones	27 0 0	6 14 8
Postages and Telegrams	10 0 0	3 5 9
Office Furniture: Repairs	15 0 0	4 13 6
Incidentals	50 0 0	10 3 1
Auditors' Fees	25 0 0	25 0 0
Library Books	10 0 0	10 1 2
Experiments and Livestock Subsidies ..	100 0 0	9 2 8
Show Equipment: Repairs	10 0 0	3 1 0
	£10,976 15 0	£2,782 14 7
Beekeeping Industry	500 0 0	155 2 1
New Office Equipment	40 0 0	18 10 5
	£11,516 15 0	
Gratuity	..	17 0 0
Advances to Instructors	..	435 0 0
Nethersole Presentation Fund	..	9 0 0
Holdings Improvements Competitions ..	..	194 1 8
Plant Diseases Control	..	18 16 0
Seeds Trading Account	..	1,015 6 7
Local Competitions	..	4 1 0
		£4,649 12 4

(Sgd.) Glaister Baxter,
Secretary and Treasurer.

(Sgd.) Donald McDonald,
Accountant.

Notices of Motions.—

Hon. A. C. Barnes, Director of Agriculture, gave notice that at the next meeting he would move the following:—

"That the Board of Management of the Jamaica Agricultural Society give consideration to securing suitable areas in lands made available for settlement by small holders with a view to the establishment of small demonstration farms under the joint management of the Department of Science and Agriculture and the Society."

Office.—

(a) *Secretary's Report on Travelling.*—The Secretary submitted report on travelling done by him during the month of June, for the information of the Board.

(b) *Application from Miss Lewis for one month's leave* was submitted and the leave granted. The Secretary was authorised to arrange date.

(c) *Date of August meeting.*—It was arranged that the meeting in August be held on the second Wednesday, the 8th, the first Wednesday falling on the 1st of August, a Public Holiday.

Instructors Committee.—

On the motion of the Chairman, seconded by Mr. Thompson, the standing orders were suspended to admit the consideration of certain recommendations of the Instructors Committee which sat that morning.

The Secretary then read the balance of the Instructors Committee's report as follows:—

Gentlemen,

Your Instructors Committee met this morning and beg to submit the following:—

(a) *The Committee refers to the Board correspondence with regard to the Summer* Course at Hope and recommend that the expenditure to cover expenses of the Instructors attending this course be approved. The amount being provided for on the Estimates.

(b) That leave of absence for the month of August be granted to Instructors Martin and Kelly.

(c) That the following Societies be affiliated:—

Salt Spring (St. James).
Spring Garden-Rock Spring (Trelawny).
Duanvale (Trelawny) }
Pike (Manchester) } resuscitated.

On the motion of Mr. Thompson, seconded by Mr. Phillips, the recommendations of the Committee were adopted.

Half-Yearly Meeting.—

(a) *Report of last meeting.*—Report of the last Half-Yearly Meeting was submitted and passed.

(b) *Secretary's Report, and (c) Interim Agenda.*—The Secretary submitted his draft report on period 1st October, 1933, to 31st March, 1934, and the interim Agenda of the Half-Yearly General Meeting. He also pointed out that matter for the meeting on the 26th July, would be received up to the 12th, so that the draft Agenda now submitted was incomplete. It was usual for a small Committee to deal with both these items.

The Secretary was instructed to refer these matters to the Vice-Presidents for their approval.

Mr. Seymour with the permission of the Chairman introduced an item listed further down on the agenda relative to matters referred from the *Liguanea Branch, re Poultry, Citrus and Cattle Industries*, and asked the Board to approve of these being placed before the Half-Yearly Meeting.

The Board approved.

Diseases of Plants and Animals: Insect Pests.—

(a) *Panama Disease of Bananas: Report for May.*—The Summary of cases of Panama Disease of bananas for the month of May, 1934 was presented and the Secretary stated that copies had been forwarded to the members of the Board.

Mr. McKay said that in connection with the subject of Panama Disease of bananas, he thought the Board of Management representing

the agricultural interests of the Island, should carefully consider a matter of Island-wide interest, namely, the oft-discussed one-root system of treating diseased bananas. Although the matter was entirely in the hands of the Department of Science and Agriculture, the Board might consider whether they should make a pronouncement on the subject and state their views to the Scientific Department. As however, the matter was one which required a considerable amount of thought and he had no desire to spring it on the meeting, he would ask the Chairman's permission to give a notice of motion on the subject.

The necessary permission was granted and Mr. McKay gave notice that at the next meeting he would move:—

"That the question of the treatment of Panama Disease by the one-root siystem be discussed at the August meeting with a view to getting all available information and if possible support public opinion which has become rather clamant."

Industries.—

(a) *Beekeeping: Report of Committee.*—Report from the Bee Industry Committee was submitted as follows:—

"Gentlemen,

Your Committee sat on the 6th June last and considered the damage caused by Petcharies to Queen Bees, and recommend that no action be now taken to alter the Law protecting these birds."

(Sgd.) GLAISTER BAXTER,
Secretary of Committee.

The report was adopted:

Shows.—

(a) *Hopewell—Local (Hanover) 1st August,* 1934.—Letter from Instructor Hastings stating that a local Show under the auspices of the Hopewell Branch was scheduled to be held on the 1st of August, next, was submitted, with the Prize List of the Show attached.

The information was noted.

Branches, Resolutions.—

Resolutions from Branches were dealt with as under:—

(a) *Mid-Clarendon re irrigation scheme.*—This resolution urged the necessity of again taking up the matter of irrigation with, a view of getting either the McGhan plan or some other system put in operation.

The matter was deferred pending further information to be obtained by the Secretary from the Branch.

Resolution from St. Thomas Branches Associated re (b) and (c) Coffee and Citrus nurseries in E. St. Thomas and Citrus nursery around Serge Island.—These resolutions requested the Society to take up the matter of establishing nurseries of coffee and citrus plants with the Department of Agriculture with a view of supplying the demand for seedlings and budded plants.

The Secretary was instructed to forward both resolutions to the Director of Agriculture.

(d) *Re Nutts River Water Supply.*—The Board directed that this resolution asking for immediate attention to the insanitary condition of the water used in the village of Nutts River, be sent to the Parochial Board.

(e) *Assistant Secretary for Head Office.*—This resolution asked for the appointment of an Assistant Secretary so that the Secretary be afforded more time to travel and advice on agricultural development.

The Secretary was instructed to inform the Association of the new arrangements which had recently been made in the office in this regard.

(f) *Assistant Instructor for St. Thomas.*—This resolution asked that as the whole parish of St. Thomas was now Instructor McLaren's district, an Assistant Instructor be appointed and assigned to this district.

The Secretary was instructed to state that an agricultural headman had been appointed to work in that parish, and the Board regretted that owing to lack of funds nothing further could be done at the present time.

(g) *Bog Walk re One-root system (Panama Disease).*—This resolution was deferred as there was a notice of motion given earlier in the meeting on the same subject.

Resolutions from St. Catherine Branches Associated re: (h) *Roads.*—Seven resolutions were submitted asking for attention to various roads, and the Secretary was instructed to forward these to the proper authorities.

(i) *Bridge at Colbecks.*—This resolution asked for the spanning of the fording of the Cocoa Walk River at Colbecks.

The Secretary was instructed to forward same to the Public Works Department.

(j) *Land Settlement.*—This resolution urged the necessity for a Land Settlement Scheme in the Lower St. Johns area and craved sympathetic attention to the petition on the subject now before the Government.

The Secretary was directed to forward same to the Government.

(k) *Re Yaws.*—Four resolutions were submitted complaining of the spread of yaws and praying for greater efforts at controlling the disease.

The Secretary was instructed to inform the Association of Branches, that attention was being given to this matter by the authorities, and outline the steps being taken.

(l) *Parochial Dispensary at Bellas Gate.*—The resolution requested that the Parochial Board redeem their promise of establishing a Dispensary at Bellas Gate during the present financial year.

The Secretary was instructed to forward it to the Parochial Board.

(m) *District Nurse.*—This resolution asked for the regular services of a district nurse in the Bartons District. Secretary to forward same to the Parochial Board.

(n) *Sign posts for School.*—The Secretary was also directed to forward this resolution asking that the necessary notices be put up, advising caution to vehicular traffic in the vicinity of the Macca Tree School, to the Parochial Board.

(o) *Post Office at Lucky Valley.*—This resolution asked that for the convenience of the inhabitants around this centre, a Post Office be established there; the Secretary was instructed to forward same to the Postmaster for Jamaica.

(p) *Re Spread of Tuberculosis.*—The Secretary was instructed to forward this resolution urging the pressing necessity for dealing with the ever-increasing menace of Tuberculosis in the Island to the Colonial Secretary.

(q) *Re School at O'Meally.*—This resolution requested that the Government be asked to erect a school at O'Meally, and the Secretary was directed to forward same to the Director of Education.

(r) *St. Elizabeth Branches Associated re Relief Work.*—Resolution from the St. Elizabeth Branches Associated was submitted praying for one of three alternative schemes of road improvement to provide relief work on account of deplorable financial conditions of Ginger Hill and

surrounding districts. The Secretary was instructed to forward same to the Director of Public Works.

(s) *Re Dispensary at Ginger Hill.*—The Secretary was directed to forward this resolution to the S.M.O., and the Parochial Board.

(t) *Re Treatment of Yaws.*—The Secretary was instructed to deal with this resolution as directed regarding others on the same subject.

New Members.—

On the motion of Mr. Thompson, seconded by Mr. McKay, the following were unanimously elected members of the Society:—

Mons. D. Kervegant, Forte de France, Haiti.

C. B. Edwards, "Retreat Ville," Constant Spring Road, Halfway Tree.

D. A. Jones, Buff Bay.

E. G. Martyn, Golden Grove.

Councillor W. A. Dillon, Delvyn, Halfway Tree.

Jas. H. Blackwood, 23 Crescent Road, Halfway Tree.

Other Business.—

(a) *Letter from Director of Agriculture re Summer Course of Lectures and Demonstration.*—Letter from the Director of Agriculture was submitted, inviting the Vice-Presidents, members of the Board, the Secretary and Supervisor of Instructors to be present at the Summer Course of Lectures and Demonstrations at the Hope Farm School, commencing on the 23rd July, when it was hoped His Excellency would attend on the opening day.

Programme of the lectures and demonstrations was also submitted.

The invitation was noted and the Secretary advised to publish the notice and programme in the Journal for July if possible.

(b) *Letter from Mr. R. Parkinson acknowledging his appointment as Auditor* was submitted and noted.

(c) *Letter from Instructor Shirley re Sugar Industry in Clarendon.*—The Secretary read report from Instructor Shirley of a conference between a Committee of the Clarendon Branches Associated and representatives of the owners of sugar factories in Clarendon, which took place on the 23rd June last. The Secretary stated that this was the result of Mr. McKay bringing up the matter of the extension of cane farming, at a previous meeting of the Board, resulting in a letter being sent to the Sugar Advisory Aid Board. The reply from that Board had taken the matter no further and Mr. McKay was advised to get in direct touch with the local factory owners. The result of the conference pointed to the fact that the small cane farmer need not hope for any definite assurances as to his canes being taken care of by the factory owners.

The Chairman stated that if that was the attitude then the matter would have to be dealt with by the Legislative Council as the industry was being benefitted by a consumers subsidy. It was hoped that Jamaica would get an extended quota and if that was so the Society should insist on the small farmer getting his fair share.

It was decided to defer the matter.

(d) *Application from Leicesterfield Branch for free seeds for Juveniles.*—Letter from the Leicesterfield Branch stating that a Juvenile Society had been started in conjunction with the Branch, and asking for a small supply of seeds was submitted.

There was a short discussion on the matter during which it was stated that the Juvenile Branches were being very successfully developed in

St. Catherine and was exhibiting marked progress in the agricultural education of many juveniles.

The application was granted.

(c) *Leave*: (i) *C. A. Crearer (sick)*.—The Secretary reported that the Seeds Clerk, Mr. C. A. Crearer had been ill for five days and had been granted leave of absence.

This was noted.

(ii) *E. Mullings, Office Messenger—6 weeks*.—An application for six weeks leave of absence on behalf of Elizabeth Mullings, Office Messenger, was submitted. The Secretary stated, that he had been advised that this messenger had worked for fourteen years without leave.

The Board granted the messenger four weeks leave on full pay.

(g) *Further resolutions*.—

(i) *Resolution from Claverty Cottage* asking for attention to a road in that section, was submitted and the Secretary directed to deal with this matter.

(ii) *Resolution from Grantham Branch* praying for a footbridge across the Rio Minho from the main road to the school was noted to be forwarded to the Parochial Board.

(iii) *Resolution from the Hanover Branches Associated* stating that the road leading from Jericho to Mosquito Cove was crossed by streams and heavily trafficked and needed attention, was submitted.

Major Pease gave further information supporting the contention of the Association and the Board recommended that this resolution be forwarded to the Director of Public Works for his sympathetic consideration.

(iv) *Resolution from Fruitful Vale Branch* praying that recommendations be made to the Government to grant an extension of the road into the Crown Lands in that section, was submitted.

The Secretary was instructed to forward this to the Colonial Secretary.

(v) *Resolution from the Royal Flat Branch* stating that the Instructor for that section had not visited the Branch or its individual members' holdings during the last six months, was referred to the Secretary for further particulars and explanation.

(vi) *Resolution from N. E. Westmoreland Branch* asking that a Post Office be established at St. Leonard's, was submitted and the Secretary instructed to forward same to the Postmaster for Jamaica.

(vii) *Resolution from the Hanover Branches Associated* asking that representations be made to have Mail Coaches equipped with portable phones or testing sets as a means of communication to the nearest Post Office in cases of mishap to the vehicles, was submitted and the Secretary directed to submit same to the Postmaster for Jamaica.

(viii) *Resolution from the Hanover Branches Associated* praying that the Government be urged to continue the Cascade–Pondside–Flint River main road, was submitted and the Secretary instructed to forward this to the Colonial Secretary with a strong recommendation from the Board.

(ix) *Resolution from Mr. B. O. Forrest*, a Direct Member, stating the desirability of having the next Half-Yearly General Meeting at some section of the Island other than Kingston, was submitted and it was decided that it be submitted to the Half-Yearly Meeting on the 26th July.

The meeting then adjourned to August 8th, 1934, at 11.30 a.m.

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—::—

"V. S. O."

—::—

"White Label"

—::—

"Red Label"

—::—

Ready-mixed
"Planter's Punch"

—::—

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SPORTS OF THE GROS MICHEL.

By L. N. H. Larter, Government Geneticist.

The Gros Michel or Jamaica Banana was introduced into this country from Martinique in 1836, but it was not until 33 years later that it was considered as a commodity for overseas trade. Banana export from Jamaica really dates from 1869 when Captain Bush loaded seven vessels at Port Antonio, and the industry became firmly established during the next decade, largely due to the activities of Captain Baker, with the result that in 1879 some 300,000 stems were shipped. From that date the export steadily increased to over 3,000,000 in 1889, over 5,000,000 in 1899, reaching 16,000,000, in 1909. In view of the vast number of Gros Michel plants which have been grown here, it is remarkable, even in spite of the clonal (vegetative) propagation, that the variety has retained such perfect uniformity, and until some ten years ago sub-varieties of the Gros Michel were unknown.

The spread of Panama Disease between 1912 and 1920 stimulated interest in the advisability of seeking a new variety of commercial value having some capacity for resistance to the disease and in consequence interest in the variability of the Gros Michel was awakened. The result has been that during the last decase six sub-varieties or *sports* of the Gros Michel have been discovered; all of these unfortunately appear to be highly susceptible to Panama Disease. The brief notes given below will be found sufficiently descriptive to enable these varieties to be recognised in the field and will indicate the directions in which the Gros Michel is liable to vary. The six sub-varieties have been named,—*Pink Jamaica, Glengoffe, Weeping Jamaica, Plantain Jamaica, Highgate,* and *Free Hill,* and will be considered in that order.

For purposes of comparison it is advisable just to mention that the typical Gros Michel plant is tall and erect, shooting its bunch when the stem (*pseudostem*) is from 10 to 14 feet high. The stem itself is blue green in colour, which is especially noticeable at the base of the leaf where the *petiole* (leaf stalk) joins the stem; the leaf bases show characteristic patches of black pigment, and there are irregular black blotches scattered over the lower part of the stem; there is an abundance of waxy bloom both on the petioles and leaf bases, and finally, the first leaves of a young plant bear crimson blotches on the upper surface.

Pink Jamaica.—This variety differs from the Gros Michel only in pigmentation, as its name implies. Young plants from 2 to 3 feet high may be readily recognised. The young stem has considerably more red colour than is usual in well grown Gros Michel suckers, the lower surface of the leaves is deep crimson in colour and the small blotches of red pigment on the upper surface of the leaves are considerably more numerous and deeper in hue than in the Gros Michel. In older plants the red colour in the lower surface of the leaf bleaches out as it unrolls, but even in the unrolled leaf is still abundant both along the midrib and on the petioles and leaf bases. The bunch exhibits no differences from the Gros Michel bunch, but the *navel* (the terminal bud of the infloresence axis) is unevenly coloured, presenting a somewhat mottled appearance owing to uneven bleaching of the pigment.

Glengoffe.—Named after the district in the parish of St. Catherine where it was first discovered, this variety also differs from the Gros Michel only in pigmentation, but the difference lies in the opposite direction to the Pink Jamaica. The plant is almost entirely lacking

in red and black pigment Young plants are less easy to distinguish than those of the Pink variety but are generally a much yellower colour than Gros Michel suckers, have a faint pink tinge but less black pigment. The blotches on the sucker leaves provide the readiest method for identification; they are prominent and a bright brick-red in colour as against the crimson blotches of the Gros Michel. The stem of an older plant is bright yellow to yellow green the patches on the leaf bases are bright brown, not black, and the waxy bloom is almost absent. The midrib and petiole or leaf stalk are both yellow but the leaf blade is the usual green. The unripe bunch is paler green and ripens to a paler canary-yellow than the Gros Michel bunch to which it is otherwise similar. The navel however is scarlet, whereas that of the Gros Michel is dull violet.

Weeping Jamaica.—Only differs from the Gros Michel in its weeping habit, the petioles are thin and weak from the base to the tip of the leaf, with the result that all the leaves droop with their apices directed towards the ground instead of the sky. This character is apparent even in the youngest plant and persists throughout its life. Even the unrolled leaves which stand vertically in the Gros Michel bend over in the Weeping Jamaica, so that their upper parts are horizontal. The other plant characters such as pigmentation, waxiness, etc., are identical with those of the Gros Michel as also is the bunch.

Plantain Jamaica.—The plant of this variety in no way differs from that of the Gros Michel, all the distinguishing features being found in the bunch. The bunch as a whole, is large and of the Gros Michel type. The individual fingers however are somewhat reminiscent of plantain fingers, they are rather longer and thinner than in the Jamaica banana and the angles are more prominent even when the fruit is full. The hands stand out from the stalk more horizontally with the result that the bunch is less compact. This feature detracts from the commercial value of the variety as it increases the liability to bruising during heading, handling and stowing the bunches, which would incidentally occupy more space in the bins. The same character however should enhance the value of the variety for breeding, as one of the chief defects of our immune seedling bananas is shortness of finger. A further character of the Plantain Jamaica is the retention of the male flowers on the *rachis* (bunch stalk) between the bunch and the navel.

Highgate.—The Highgate banana which has recently come into prominence in Jamaica was first discovered near Highgate in the parish of St. Mary. It is markedly different from the Gros Michel banana both in plant and bunch characteristics and bears some resemblance to giant forms of the China (Cavendish) banana such as the Robusta (Congo). It differs from these varieties however in being susceptible to Panama Disease.

The sword suckers are very broad at the base and distinctly conical in shape but otherwise resemble Gros Michel suckers. The plant is short, shooting the bunch when the stem is 6 to 9 feet high, and though resembling a telescoped Gros Michel plant is liable to confusion with Robusta. The leaves are crowded together so that their spiral arrangement is very noticeable, the leaf bases carry the typical black markings of the Gros Michel and an abundance of wax. The Robusta on the other hand, is less waxy, and marked with dark *brown* blotches on the leaf bases. The leaf stalks are short, about 1 foot long, and bear along their margins (or wings) a broad bright red band of colour,—the wings of the Robusta petiole bear a fine red-brown line.

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better on poor soil. Under similar conditions the bunches are larger in the Highgate; where a Gros Michel would shoot an 8, a Highgate would be expected to shoot a 10 hand bunch, the weight being proportionally greater. The hands are inserted on the bunch stalk rather closer together with the result that the bunch does not appear quite so compact, this difference is however slight. The navel is generally very large as in the Robusta but unlike that variety the inner bract leaves of the navel do not protrude beyond the outer. The short stem and the larger bunch should make the variety valuable for commercial use,— for planting on healthy land.

Free Hill.—This variety, the latest addition to our collection of subvarieties of the Gros Michel, shows no advantages over the foregoing from the commercial standpoint. There are as yet only three old and three very young plants, which are insufficient to provide a detailed description. The variety bears resemblances both to the Pink and the Plantain Jamaica. Its principal advantage over the Gros Michel varieties is its greater fertility, which is of importance in connection with breeding the Jamaica banana.

This brief survey of the sub-varieties of the Gros Michel in Jamaica is only intended to facilitate the distinction of these varieties in the field. A more detailed account is in course of preparation and will be published conjointly with Mr. J. B. Sutherland, at whose instigation these varieties have been collected and preserved.

Some of these varieties are commercially inferior to the typical Gros Michel and one at least is superior in some respects. The fact that the Jamaica banana has this capacity for sporting such variant forms encourages one to keep a look-out for further new types, for it is not impossible that a resistant or immune strain (to Panama Disease) may one day appear in this manner.

TARIFFS.

The statement below shows very conclusively the profound influence that tariff arrangements between countries have on trade.

Table showing increase in Exports to the United Kingdom.

Commodity.	Unit.	12 months ending February, 1933.	12 months ending Feb., 1934.
Apples, fresh	brl.	1,530,640	2,983,145
Apples, dried	lb.	292,775	967,475
Fruits, canned	lb.	9,964,536	16,114,594
Vegetables, canned	lb.	4,886,635	14,408,181
Tomatoes, canned	lb.	2,876,535	8,873,059
Cattle, live	head	20,629	54,364
Bacon and hams	lb.	34,482,800	83,406,700
Eggs ..	doz.	24,720	1,920,055
Planks and boards	M. ft.	182,195	544,909
Aluminium	cwt.	1,170,994	4,070,537
Copper ..	$	5,887,412	10,038,834
Nickel ..	$	1,122,265	7,842,935

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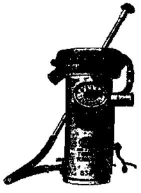

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EDITORIAL COMMENTS.

The Livestock Industry of the Colony.

Our Livestock Industry has fallen (temporarily we hope) on evil imes. Neither branch of this valuable industry in meat or dairy roducts has escaped the sharp decline in prices. The price level ıas gone below pre-war levels in face of the fact that investment 'alues and wages have hardly declined from their post-war peak.

We do not propose to deal with more than one branch of the industry nd that the dairy branch, in these comments, reserving for a subsequent ssue what we have to say in regards to its other branch, the production f butcher's stock. First of all our dairy industry suffers the severe ıandicap of an entire misconception as to its potentialities in the public's nind. City man, merchant, financier, salaried and wage-earning onsumers, sugar planter, banana planter, general agriculturist in the reat majority lack respect for it. But worse than this, the producers f butcher's stock also lack respect for their sister industry, and even vorst of all and probahly the most vitiating factor to the industry is hat the dairyman himself is unaware of its possibilities for profit. The daily Press states unequivocally that this is not a dairy country. The sarcastic might suggest that we are claiming to be the Christopher Columbus of the value of this industry. We don't think we are, but ven at the risk of this ridicule it still remains the duty of this Journal o state the facts.

The butter industry has in the past been operated as a delicatessen ndustry and was only producing in limited quantity, catering for a pecial restricted market that could afford to pay high prices—prices ıigher than the price levels of imported butter. Several factors have perated in changing the marketing position of our local butter. First, ın expansion in the production of local butter immediately resulted in roduction over and above the need of the special restricted market lready referred to with a consequent competitive drop in prices and ntry of the surplus of our butter into the highly competitive and lower riced market which had hitherto supplied the masses of the ordinary onsumers with lower priced butter or butter substitutes. Secondly, he special market that could afford to pay for high priced butter began, n account of the depression, to become of itself smaller. Purchasing ower of many individuals formerly able to pay for their particular astes altered for the worse in so many cases that this class of consumer ıas become very much smaller than it was a few years ago.

Thirdly, world prices of good quality creamery butter became so ow that imported butter of excellent quality became available at rices lower than the previous grades of poor butter and also of butter ubstitutes which had hitherto served the masses of the consumers.

The difference in the quality spread of all butters on the market ıereby practically reached vanishing point and consumers of all classes arted to find out that the question of difference of quality of the utter available was not of so much importance and the question of rices only became dominant as an influence in the choice as to the utter to buy. The important fact that emerges from the brief survey the market given above is, that there is no longer a high priced arket or any body of consumers large enough on which to unload a gh priced butter; further, even if there were our local butter no longer ıs a monopoly on quality and so in any case to exist the industry must able to compete with overseas butters.

In other words we have available the large market of the ordinary consumer and none other, if we can compete for it. Put another way, our dairymen must realise that their product is not a luxury product but an ordinary food product that may be produced on a large scale and must be produced at costs of production comparable with other countries.

This brings us to the question: Can this be done, and what are these markets worth? Before answering the first question, the answer of the second will be of interest. Butter imported into the colony within recent years amounted to:

	Declared Values.
1930	£43,172
1931	45,998
1932	37,183
1933	33,012

In addition to this the local production was disposed of and this may be estimated very approximately as averaging 120,000 lbs. per annum and calculated at a value of 1/- per lb. would amount to £6,000. The best butter market may, therefore, be conservatively valued at £40,000 per annum, on the basis of even present price levels. If we find the way to profitably produce and secure this market, it should mean to us the profitable maintenance of 20,000 acres of pasture land, allowing 5 acres for a cow and for replacing young stock, and of 4,000 head of dairy cows, allowing for an average milk yield of 4,000 lbs. milk per annum with the necessary number of younger classes of cattle for their replacement.

The question may be asked with justification as to why when price levels for butter were higher did not butter production expand. The reason for this is that meat prices were so good and dairying requires so much more effort, technique and capital that it failed to attract the larger live stock breeders who were able to make moderate dividends on comparatively large capital investments and with less effort. Also that, as said before, only a restricted high priced delicatessen market was being catered for.

The question: "Can this be done?" we will now answer and proceed to prove the answer:

We can produce butter in Jamaica to wholesale at 1/- per lb., allowing for a profit to the producer.

The requirements for this are:

a. good pasturage,
b. fair rainfall,
c. improved pasture management,
d. milch cows averaging 4,000 lbs. milk per annum,
e. a certain minimum volume of production per manufacturing unit.

We are admitting at the outset that we know of only one concern operating in the colony that is within very near reaching distance of these requirements, but the concern that we have in mind already possesses the first four requirements and will within the year be possessed of the last of them, the economic minimum volume of production.

We will endeavour to go into greater detail of cost of production otherwise our previous bald statement that butter can be produced and wholesaled at 1/- per lb. with a profit to the producer may be challenged. Given good established pasturage, say 1,000 acres with fair rainfall and improved pasture management, feed is available for 200 milkers and 100 or more heifers for replacements.

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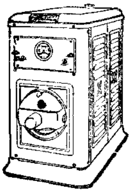

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The capital value of such outlay is likely to be as shown below:

Property—Land Values	.. ..	£5,000	
Buildings and Furnishings	..	1,000	
Factory Machinery	.. ..	500	
Livestock—200 milkers at £15	..	3,000	
125 heifers of various ages at £24		500	£10,000

The annual operating cost is likely to be as follows:—

Superintendence	.. ..	£300	
Stock attendance	.. ..	260	
Pasture cleaning and maintenance	..	260	
Fencing maintenance	.. ..	50	
Building maintenance	.. ..	75	
Farm supplies	.. ..	50	
Factory supplies	.. ..	100	
Equipment maintenance	.. ..	50	
Sales expenses and advertising	..	105	
Taxes, etc.	.. .. ..	50	£1,300

Production should be per annum:—

Butter—40,000 lbs. at 1/-	..	£2,000	
Separated milk surplus over requirements for rearing heifers 100,000 qts. valued at ½d. per qt. as pigs' feed—round figures	.. ..	200	
Old cows disposed of one eighth of herd		100	
Proportion of young heifers sold surplus to requirements	.. ..	100	£2,400

In addition to these main products of such a farm, there are usually some by-products such as logwood or pimento or both, as also the possibilities of pigs carried on modern methods that should bring in a few hundred pounds per annum.

Allowing £100 for pasture by-products and £200 for pigs the gross production per annum would amount to £2,700, the net operating profit being £1,400. Allowing for unforeseen expenditure or reduction of income lessening this figure by £200, the net operating profit would still be £1,200—12% on the investment.

The depreciation on this class of investment is very small, practically confined to buildings, machinery and equipment, which £100 per year would adequately cover. The investment, therefore, if entirely capitalised by the owners clearly allows for a 10% dividend on a 1/- per lb. butter market.

Most of our farming investments in Jamaica are, however only partially capitalised by the farmer and such an investment is more likely to be capitalised by a £3,000 mortgage bearing interest at 6% and a £7,000 owner's capital.

The dividends would then work out as follows:

Profits £1,200
Less 180 for interest charges.

Net 1,020 on investment of £7,000—14 4/7%.

These calculations we must repeat are based on wholesale prices of 1/- per lb. For every penny rise in this price of butter the profits should be increased by £166 13s. 4d. per annum and the dividend increased by another 1 2/3% with wholesale prices 1/3 per lb. profits

would therefore be £500 more and dividends on entire owner capitalisation 15% and on partial owner's capitalisation 21 3/7%. For the type of investment which is one of the least risky of agricultural investments, it may be considered decidedly good.

It will be noted that charging all operation costs (£1,300) to the butter production only (40,000 lbs. of butter) the cost of production per lb. of butter is 7 4/10d. per pound. If the net costs are used, i.e. £1,300 less £400 realised from minor sources—£900, the cost of production per pound of butter is 5 2/5d.

Knowing of our lack of efficiency in dairying and especially the absence of the efficient cow, it may be of interest to examine how far we can stray from the standard of efficiency and not at least lose money. We will use the gross expenditure of £1,300 in our calculations, ignoring the revenues from the minor items. With cows averaging 3,000 lbs. milk per annum the cost of production per lb. butter would be 10 2·5d. With cows averaging 2,600 lbs. milk per annum would produce butter costing 1/- per lb. so long as they were in 200 herd units. With cows averaging 2,080 lbs. milk per annum butter would cost 1/3d. per lb. For the convenience of Jamaican dairymen, the majority of whom think of their cows' performances in terms of quarts per day instead of lbs. per annum we offer below the equivalents. The annual lactation period is allowed as 300 days of the annual 365.

4,000 lbs. equals a 5 1/3 quarts average per day throughout lactation period.

3,000 lbs. equals a 4 quarts average per day throughout lactation period.

2,600 lbs. equals a 3 7/15 quarts average per day throughout lactation period.

2,080 lbs. equals a 2 3/4 quarts average per day throughout lactation period.

Milch cows averaging 5 1/3 quarts per day during entire lactation period are probably what we popularly call 10 quart cows, this figure referring to maximum daily yield at the highest peak of the lactation period; 4 quart averages are probably our 8 quart cows and 3 7/15 quart averages our 7 quart cows; 2 3/4 quart averages our 6 quart cows. The 10 quart cow usually gives 7 quarts at the morning milking and 3 at the afternoon milking; the 8 quart cow 5½ quarts milk at the morning milking and 2½ at the evening milking; the 7 quart cow 5 quarts at the the morning milking and 2 quarts at the evening milking; the 6 quart cow 4 quarts at the morning milking and 2 quarts at the evening milking.

It will be realised that cows called efficient for the purposes of this article are not above the average of well bred grade dairy cattle now common among dairymen that have been in the business for some time. There is nothing impossible about producing them in quantity and what is required for their quantity production is the will to do so through confidence in the possibilities of the dairy branch of the livestock industry. *The trouble therefore seems* to be, *how to make a start,* and it is this problem only that has influenced the request for Government assistance.

We therefore propose to examine the wisdom of Government assistance.

As shown before, the value of the butter industry may be regarded as £40,000 per annum. Only 4,000 head of good cattle is needed to *satisfy our local needs. Only 20,000 acres of good pasture land would* be maintained by the industry. At its best it would represent a very small percentage, a mere fraction, possibly 10% of the livestock industry which in all its branches is computed to be worth some £400,000 per

annum to the country. On the merits of butter alone it would appear hardly worth while a thought. If butter production was to be the ultimate of our dairy development it would be better to trade the butter trade with New Zealand in exchange for some concessions in her citrus market; but the encouragement of butter production and the heightening of our dairy efficiency will be the means of placing our livestock industry in the position of producing one penny per quart milk. The importance of this phase of the matter cannot be over-estimated, for here is the required stepping stone to condensed milk manufacture with a potential local market of £125,000 per annum. This would immediately create a major industry—butter and condensed milk combined—worth nearly £200,000 per annum added wealth to the colony. This would need the maintenance of over 40,000 head of milch cows and the usual complement of young stock and the maintenance of some 200,000 acres of pasturage.

Long before arriving at this stage of dairy development the beef branch of the industry would be relieved of their over-production of beef animals and their price level would without further assistance adjust itself.

We so badly need additional sources of farmers' income in this colony that with possibilities such as these it would be nearly criminal if we neglected to plan for and organise so as to create promising and suitable industries. Here is one, irrefutably suitable to our conditions and for which we have much already that is necessary for it. We have well established and good pasturage, nuclei of good cattle, and in this regard we cannot refrain from mentioning the most valuable foundation work that has been done by the late Director of Agriculture, Mr. H. H. Cousins, and which is still being carried on on the same progressive lines by his successor, the Hon. Mr. A. C. Barnes, the present holder of the office, as also some few progressively minded dairymen. We have experienced livestock breeders, and despite the fact that the report of the Government Select Committee on the matter of assistance apparently has been cold shouldered by the Legislative Council, we have strong reason to believe if they can be shown evidence of resulting efficiency and organisation of the industry consequent on Government assistance enabling a start in the right direction, that they will be very willing to assist it.

Above all we have our own home market of £200,000 per annum at our doors.

Having these facts in mind, we are heartened to suggest some constructive plans, this with much diffidence, but nevertheless feeling that the duty of this Society to the colony does not permit us to have the matter as it stands to-day.

First of all we must realise that a proper choice of dairy country is as essential to success as is the choice of good banana land for bananas or citrus land for citrus or cane land for cane.

We must remember cheap milk is dependent on good pasturage. One cannot feed concentrates to any extent except to produce milk for a comparatively high priced fresh milk trade, and certainly not to low producing milkers. Only milkers of high capacity have the ability to convert expensive concentrates into cheap milk. Good pasturage must be accompanied by fair rainfall, fairly uniformly distributed. Slopes of land should be moderate—not steep, level pastures being of course all right. Pastures should be smaller in area than is customary, and fed at more frequent intervals with the grass at younger stages than is now generally done.

Secondly, we must be willing to start with what cows we have; otherwise there may never be a start. These cows may be classed amongst the lowest yielders that we discussed, which is a cow capable of averaging 2,080 lbs. milk per year, an average of $2\frac{3}{4}$ quarts per day of her entire lactation period. Her maximum daily yield at her peak of production around 6 quarts, 4 in the morning and 2 in the evening. As these cows may not be broken to dairying (that is milking without the calf) the cow giving 3 quarts per morning in full milk and able to rear a calf will have to serve.

Next, we must procure bulls of the right breeds, strains and types and commence right away to breed in the right direction.

I cannot but recommend the Jersey-Montgomery grade cows with a proportion of 3/4 to 13/16 Jersey and 1/4 to 3/16 Montgomery. I have had the opportunity of seeing the type nearly fixed and in appearance, shape, type and milking performance bid fair to become the future tropical milch cow. These animals have stocky bodies and clean coats, but retain the fine intelligent heads and fine extremities of the Jersey, but with an increased size. These animals give a fair carcass also.

The Red Poll under certain circumstances and in suitable locations may also be recommended.

On this question of bulls we are glad to be able to definitely state that it is the declared policy of the Hon. Director of Agriculture to assist by making available the services of bulls of the desired breeding and type to farmers large and small who have organised sufficiently to ensure that services of these bulls are sufficiently utilized. A start has been made by the Department. A bull of excellent breeding (Jersey-Montgomery) has been placed in St. Elizabeth for service.

Arrangements have also just been completed for certain stud bulls to be available at the very low service fee of 6/- at the Hope Farm. The activities of the Grove Place centre is already well known to all of us. Extension of this service is, as can naturally be appreciated, dependent on the response of livestock breeders. To sum up the sire question, we must bear in mind that the efficient sire is the most profitable sire, whatever his cost may be.

We now come to what is an important essential to the creation of the industry—the need for organisation. The advantages of organisation are several. First and foremost is the importance of the required minimum of volume for economical production.

Next the need of organized entities with which the Government may deal.

Next the advantage of the co-operative principle to allow of unity of action, exchange of ideals and knowledge and, most important, the ensuring of orderly marketing and suppression of cut-throat competition, as also allowing of the smallest farmer participating in the development of the industry.

With reference to the required minimum for economical production, we have already set this out as 1,000 acres good pasturage and 200 good milkers.

Few farmers in the colony can encompass this investment alone. Those who can need not join in co-operative manufacture, although they should certainly join up with a federation of manufacturers to to ensure orderly marketing.

It, therefore, becomes necesary that owners of smaller numbers of milkers should co-operate with each other into units providing not less than 1,000 quarts of milk per day for butter manufacture.

Many areas in Jamaica provide up to 5,000 acres of good pasturage within easy reaching distance of a well located centre and all the machinery necessary for the farm would be an appropriately sized separator of an efficient make. Only fresh cream need be transported to the factory, the separated milk remaining on the farm. Such a butter factory should be co-operatively run, all real profits being returned to the producer.

Having indicated the need and reasons for organisation we will now discuss what may justifiably be asked of Government in the nature of assistance.

We suggest the following:—

A. Credit if necessary up to 50% of the cost and erection of manufacturing plant of approved type and approved location. Such approval to be obtained from the Director of Agriculture and of course the organisation would have also to be approved by him.

B. Temporary tariff protection or subsidy for a period of six years to allow of the necessary time for the industry to arrive at the required standard of efficiency which would allow it to compete with world prices on its own merits. Six years appear the minimum period possible for breeding sufficient milk blood into our present animals. The questions immediately arise as to what should such a subsidy or tariff protection amount to, and should it be subsidy or tariff protection.

Referring to our calculations on cost, it would appear that our present average milk yield would permit butter manufacture at 1/3d. per pound, allowing for a profit of 3d. to the producer, one penny to the wholesale distributors and twopence to the retailers, butter would have to be retailed at 1/9 per lb. It is neither to the interest of the consumer or the producer to have butter prices as high as this. For one thing consumption would lessen and butter substitutes would again be increasingly used. Such a result would be exactly the opposite of what the industry requires. Another aspect is that one can hardly feel it just to penalise a limited consuming public with such an increase on their regular weekly household expenditure especially when it is borne in mind that a very large percentage of this class of consumer has experienced a sharp curtailment of their spending powers in the past few years. As a matter of fact, one good that cheap butter has done to the industry is that many who in the days of higher prices never used creamery butter, now do so and so with low prices for butter maintained the local market is likely to expand. Our present consumption of butter is around 800,000 lbs. per annum; less than 1 lb. per head per annum of the population. Now as the average household that does eat butter uses at least one pound per week, say 50 lbs. per year, it becomes evident that the butter consumers constitute a more limited community than is generally believed. Really about 16,000 families, and using an average of five for a family, would amount to 80,000 people, about 8% of the population, probably consisting for the most part of the upper and middle classes of the country, the latter much in the majority and for the most part salaried employees and small farmers, a class we fear able to carry no further burdens.

For these reasons we favour a subsidy rather than tariff protection.

We must, to arrive at the necessary subsidy, survey what we have to compete against.

Unquestionably the present market level of New Zealand butter (which has run all other butter out of the market) can only be a temporary phase. The lowest price (and which has ruled during the past few months) was approximately 9d. per lb. c.i.f. duty paid.

It went from wholesaler to retailer at 10d. per lb. and from retailer to consumer at 1/- per lb. At time of writing we learn that New Zealand quotations have gone up by 2d., so that with the narrowest margins of profits the prices must go up all round and retail prices are likely to be 1/2 soon. At present prices it must not be imagined that the New Zealand farmer in spite of the high organisation and efficiency of his industry and favouring natural features of pasturage and climate is having a rosy time. He isn't, and is only in the market at these dumping prices because he must dispose of his products whether as salvage or not. He cannot, however, indefinitely, continue to sell below cost. His efficiency has not the leeway for improvement that would enable considerable lowering of his costs of production. To do this they would have to confine their production to their most favourable areas and their very best cattle, which would lessen production and consequently increase prices. On the whole, it may reasonably be considered that retail prices of New Zealand butter will in the near future reach 1/3 per lb and not go again below it.

Besides these considerations it must be remembered that the New Zealand farmer has to pay handling charges, steamship freights and duty to put his butter here so that there are some advantages on our side in our own local market.

Figuring from the information outlined, it would appear that for a start a subsidy of 6d. per lb. would induce an organised start to the industry. In three years our efficiency should start to improve and then the subsidy should be reduced by two pence each year until it disappeared, which it would at the end of 5 years from the start. Our butter industry should then be able to take care of itself on its own merits and we would be well on the road to a condensed milk industry.

What would the subsidy cost the country.

Our present butter production has been estimated at 120,000 lbs. We estimate that a Government subsidy would stimulate production as shown below:

In the first year to 200,000 lbs.
In the second year to 300,000 lbs.
In the third year to 400,000 lbs.
In the fourth year to 500,000 lbs.
In the fifth year to 700,000 lbs.
In the sixth year to 1,000,000 lbs., which last figure would be taking care of a natural increase of consumption and would be without subsidy.

The subsidy would then be:—

First year at 6d. per lb.	..	..	£5,000
Second year at 6d. per lb.	..	..	7,500
Third year at 6d. per lb.	..	..	10,000
Fourth year at 4d. per lb.	..	..	8,333
Fifth year at 2d. per lb.	..	..	5,833
Total subsidy of		..	£36,666

It might be agreed that it would also cost the Government loss of duty through the displacement of the imported article. This, however, would be very poor logic. We would have produced £155,000 of butter in the country during that period and our wealth would be that much more, and as the Government invariably collects a high proportion of our produce values and would have benefitted by an increased spending power of the producers, much of the supposed loss would

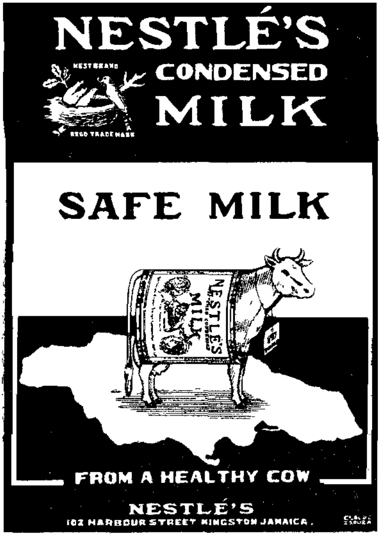
have been indirectly recovered, but more important still would be the creation of an industry likely to be permanent and worth £50,000 per year expanding as time go on and in addition laying the foundation for another industry, the condensed milk industry, with possibilities five times as large.

REVIEW OF CURRENT LITERATURE.

We welcome the issue of the new News Letter of the Farm School Old Boys Association for 1934.

Its Editor, Mr. W. L. Shirley, Crooked River, is to be complimented on his enthusiastic start in the realms of journalism.

It makes very interesting reading and we hope for it a long extended period of usefulness and the full support of the old boys of the Farm School.



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We reproduce below an admirable article on the breeding of Dairy Cattle by Professor Robt. Boutflour of the Royal Agricultural College Cirencester, England.— It will be recalled that previously we have also reproduced some of his writings on the Feed and Management of Dairy Cows, writings which we regard as the most up to date pronouncements on the subject that have come to our notice. The article we now reproduce, on another phase of the dairy industry, is no less important and in examining the little progress made by our Island dairy industry in the past, the articles provide many answers to what appeared some very insoluble problems.

The efficiency of our dairy industry is of enormous importance to the country and the efficient herd sire possibly the most important factor necessary to its improvement.

[Ed. Note.

STANDARD OF EXCELLENCE IN DAIRY CATTLE.

It is not for lack of good Bulls that our Dairy Cattle Improvement has been stationary, the trouble has been that we could not distinguish the Bulls.

ROBERT BOUTFLOUR.

When the history of agriculture is written, from the time of Arthur Young to the present, it will present the remarkable spectacle of a period of a hundred and fifty years during which great progress was made in many ways—particularly in crop husbandry, veterinary science, and animal nutrition—but no progress at all in the breeding of our most important domestic animal, the dairy cow.

At the beginning of this period, Bakewell and the Colling Bros. achieved notable success with beef cattle by selection of breeding stock for type and pedigree. About the same time agricultural shows were established, and thus began the practice of exhibiting and judging cattle at agricultural fairs and shows which have played so great a part in the development of beef stock. Of course with meat breeds, meat is type and proper type is meat. To a good judge, then, meat-producing stock, both male and female, are clearly disclosed by the appearance they present. A sincere standard of excellence for beef cattle, always, therefore, naturally attached much importance to type and pedigree.

It was perhaps inevitable, under the conditions of the time, that conspicuous success in development of meat stock should suggest to breeders that dairy cattle could be improved by the same methods which have done so much for the meat breeds,—and nevertheless, very little consideration is sufficient to make it clear that in their nature the two problems are essentially different. A beef bull shows his inheritance in the flesh he carries. He is himself a producer of meat and he shows in his form the meat he produces.

JUDGING BY THE OUTSIDE.

The dairy bull, on the other hand, in this sense, is no producer at all It is his function to beget daughters, transmitting to them the quality of milk production, and it is only through these daughters that the bull can be said to possess any dairy qualities whatever. It was absurd, therefore, to exhibit dairy bulls with beef bulls, as though both alike were to be regarded as in the class of producers, and yet this is just the mistake that was made. A similar mistake was made with dairy cows, for these animals owe their value to the efficiency of their bodily metabolism—not to the flesh they carry. Enthusiasm and competition

however, ran high, agricultural shows where beef cattle were exhibited had been established, and the result was that both beef cattle and dairy cattle were exhibited and judged in the only way known to those times—that is by their appearance. Breeders of dairy cattle have thus been led to select breeding stock with milk in their pedigree and beef in their appearance— the offspring which come from this sort of breeding being some beefy with a little milk, some milky with a little beef, some fair in both, some bad in both, and very few indeed good in both.

Milk Recording Started.

This breeding inevitably led to what are called dual-purpose breeds—that is, breeds which produce both milk and beef in the same breed, but unfortunately, not often in the same animal.

The next development was "milk recording," or, as it is called in America, "cow testing"—heralded as the means of improving the yield of our dairy cows, the recommendations being to record the production of the cows, select the highest yielding cows, and mate them with the son of a high yielding cow in the hope thus to produce high yielding offspring. Breeding on this principle has now been going on in Great Britain for about thirty years with no increase in the production of our cattle. Any improvement in the output of our cows during this time is due to better care and feeding—not to better cows.

To-day, after all these years of recording and pedigree breeding, you might go to our premier shows with a long purse and full of hope and buy the champion bull with a great pedigree and wonderful show winnings, and every one knows you would be gambling, for no one could tell you, not even the seller, what kind of daughters the bull would sire. No wonder most sellers of such bulls wish the buyers luck,—for having emptied their purses, buyers are left only with hope *of luck wrapped up in the bulls they have bought.*

During this time the world has been full of the slogans of salesmen. We have been told to "buy type and pedigree and you will breed good dairy cattle." In 150 years there have been many who followed that advice, and of them all, none—not a single one—has consistently bred good dairy cattle.

Like Begets Like.

It is said that "like begets like,"—when everybody who has been willing to look at brothers and sisters has had obvious proof before him that the rule affords no safe guide to the breeders of dairy cattle.

Another popular doctrine has been—"mate a high producer with the son of a high producer and you will breed high producers"—a doctrine that has proved a great snare and delusion because of its very plausibility. Year after year, breeders have paid high prices for sons of high producing cows, or sons of cows which gave a high percentage of butterfat. Two out of three of the bulls bought on these principles are bad bulls, and undo any good work done by the odd good one.

Our agricultural shows have done definite harm by fostering the judgment of dairy cows by appearance, while anyone with any common sense knows that a dairy bull cannot rightly be judged in this way.

At the present time, over thirty years after the beginning of the science of genetics, the official livestock scheme for dairy cattle improvement, subsidized by the British Ministry of Agriculture, is *genetically* unsound and has nothing to recommend it.

Dr. Hagedorn of the University of Leiden in Holland, lately describing such schemes, said that they have no scientific foundation and are bolstered only with quasi-scientific terms that are meaningless or false.

Breeding to Date.

And so we arrive at 1933 in England with:

a. No successful breeders of dairy cattle.

b. The practice of judging dairy cattle by appearance, and a fetish for "Type."

c. Insincere standards at our shows.

d. Almost complete ignorance of scientific breeding by breeders.

e. A belief that beef when laid on by dairy cattle represents constitution.

f. An inheritance of a lot of poor milking cows, divided into two classes: (1) non-pedigree, (2) pedigree; both pedigree and non-pedigree cattle being equally the product of unscientific and mistaken breeding methods of the past.

g. The science of genetics.

To summarize, then, we can say that the efforts of the last 150 years have been wasted, for there has been no improvement of our dairy cows in that time. In fact, I believe there has been no improvement in the last 500 years. Certainly there were cows 160 years ago that produced ninety and a hundred pounds of milk in a day—nine and ten gallon cows, as we call them in England—for such cows are mentioned by Arthur Young, Culley, Curwin, Laurence, and other English writters. The first officially recorded cow averaged 12,270 lbs. for 6 years between 1805 and 1811, and Harley reports ten gallon Ayrshires in a recorded herd over a hundred years ago.

Early High Records.

In the survey of the county of Suffolk made over 130 years ago, it is stated that most herds contained cows giving up to 80 lbs. of milk per day,—and it must be remembered that all these high yields were made by animals which were kept by herdsmen without the knowledge of feed and care which are so important to our present day records.

What then of the future? A hundred years of wasted time gives little encouragement! Is the agriculture of the future condemned to nothing better than this? Surely if any help is possible from any quarter the British farmer,—and the American farmer, too,—wants to know it, for agriculture never bore heavier burdens than it carries now and never had greater need for help.

It is with no small satisfaction then that we are able to say that the means are at hand to build for the future a new kind of animal husbandry, better and more profitable than any animal husbandry the world has ever yet known. Genetics is a new science; nevertheless, in the last few years so much has been learned of the laws which control inheritance that is is now possible to establish high producing strains of domestic animals such as will reduce a farmer's costs and increase his profits.

There is no doubt about genetic methods for they have been abundantly tested both in a laboratory and in practical affairs. They are at the present time actually used by many practical dairymen and are meeting with the success which belongs to sound methods.

All breeders willing to sacrifice whatever is immaterial, will find the requirements for success in breeding profitable dairy cattle, few and simple. They are indeed nothing more than that in the first place they shall set before themselves a sincere standard of excellence in breeding dairy cattle for dairy qualities, and in the second place, that in their breeding work they shall use proved sires, having known indices In these two commandments are all the law and the prophets—there are no further requirements.

The country that has given the most attention to the proved sire is the United States, and most of the proved sire work in that country can be traced to the prioneer work at Mount Hope Farm, Massachusetts.

At this well known farm the study of inhereitance is conducted with mice, poultry, and dairy cattle. In the case of dairy cattle a simple formula has been devised, known as the Mount Hope Index, by which it is possible to put a definite appraisal upon the breeding qualities of a dairy bull. This is accomplished by a comparison of the average production records of all a bull's daughters with the average production records of the dams of these daughters. There are different ways in which this comparison can be made and for purposes of genetic study refinements are possible. For the ordinary use of dairymen, however, it is sufficient to know that both in respect to quantity of milk produced and in percentage of butterfat, the daughters are not far from half way between parental levels. Thus, if a bull is mated to cows which have an average production of 10,000 lbs. while the daughters have an average production of 11,000 lbs., then the inheritance for milk which the bull possesses is 12,000 lbs. This latter figure is known as the Bull Index for quantity of milk production. The figures for butterfat can be obtained in a similar fashion. The value of the index of course increases with the number of pairs on which it is founded, so in stating a bull's index the number of pairs should be given. In the case, supposed for example, if based upon six dam-daughter comparisons, the index would read: 6 pairs:— 12,000 lbs. milk—5%—600 lbs. butterfat, and these figures will be accepted as stating the producing inheritance, which on the average this bull transmits to his daughters.

This is a great step forward, *the bull index being of great value,—even of more value than the milk record of the cow*, for a bull's index is the average of many performances, and must be fairly accurate.

What a simple way to learn the breeding value of a bull! And there is no mistake about it, for if dairy qualities are a mingling inheritance—as we know they are—daughters must necessarily be between parental levels, and knowing the position both of dams and of daughters we can fix the breeding value of the bull with a degree of accuracy that is sufficient for all practical purposes. It is possible then hereafter in all cases to avoid the use of poor bulls in breeding herds.

What a revolution we can make in British dairying! There have surely been good bulls in England during the last 150 years. It is not for lack of these bulls that our dairy cattle have been stationary. The trouble has been that we could not distingush the bulls that would beget poor daughters, and so poor bulls have followed good bulls in our best herds and good bulls have followed poor bulls—the poor ones being always most numerous—and improvemeut has been impossible.

The time of all this uncertainty, however, is now past. It is possible hereafter, by the use of good indexed bulls, to increase the average production of every herd of dairy cattle in England. No tariff or quota or marketing scheme can do as much for British dairying as we can do for ourselves by the introduction of sound breeding methods.

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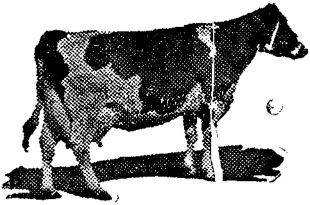

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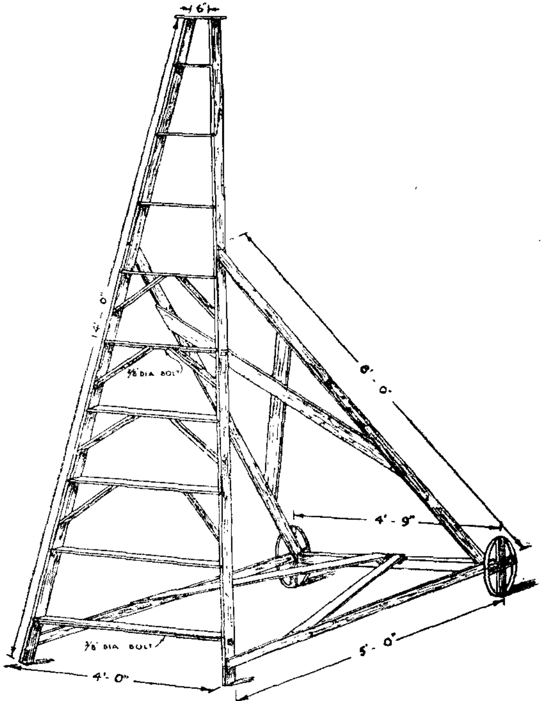
AN IMPROVED TYPE OF ORCHARD LADDER.

E. C. Whittaker, Fruit Inspector, Batlow.

The ladder described in this article was built by Mr C. Barberie, of Batlow, for use in his orchard, and it is a type particularly suitable for picking or pruning large trees, being much safe, lighter, and easier to



handle than the large tripod ladders generally used. Tripod ladders, 12 to 14 feet high, are not at all suitable for such districts as Batlow, where the rich soil causes the trees to grow comparatively high. Apart from the danger to the orchardist in trying to pick or prune these large trees from the tripod ladder, it is so cumbersome that much damage is often occasioned the limbs and fruit spurs when manoeuvring it into position.

The ladder improvised by Mr. Barberie is of simple design, as can be seen for the accompanying sketch. The most important point is to put the main prop from the axle to the ladder well above the centre of balance of the ladder so that there will be no danger of it overbalancing when the operator is on the topmost rungs. Bolts and screws should be used wherever possible in preference to nails, as they ensure a more lasting and satisfactory job.

The main measurements are shown on the sketch. Mountain ash battens (3 inches by 1 inch) are suitable for the framework, and 2-inch by 1-inch battens for the steps. The wheels are made by crossing pieces of 4-inch by 1-inch hardwood and banding them with an iron band about 1 inch wide by ¼ inch thick, which is drilled and screwed on to the hardwood cross-pieces. A hole is bored in the centre of the crossed pieces to take the axle. It is a good idea in order to save wear to screw a small hardwood axle block on to the cross-pieces. When the axle block wears it can be renewed. If it is not desired to go to the trouble of making the wheels, suitable ones could be purchased. They should be not less than 9 or 10 inches in diameter.

The axle should be of steel, but need not be very heavy as there is no great weight to support. To give additional strength and rigidity, however, it is perhaps advisable to bolt the axle to a piece of 3-inch by 2-inch hardwood.

To move the ladder from place to place the orchardist merely picks up the two legs of the ladder and wheels it into position. There is not the least tendency for a ladder of this design to prove unwieldy or bog on newly ploughed or boggy land, even on land on which it is impossible to walk without sinking over the ankles.

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APPLY

REGINALD AITKEN, 122 Tower St., Kingston.

We propose publishing some pictures in connection with the drive of the Society for the Prevention of Cruelty to Animals, sponsored specially by the St. Ann Branch of the Society, whose Honorary Secretary is Mrs. Gilbert Cocks, Knapdale, Brown's Town, St. Ann. The Chairman of this Branch of the S.P.C.A. is the Hon. Sir Thomas Roxburgh, Kt., and the Vice-Chairman, Mr. C. O. Cover, J.P., and member of the Board of Management of this Society.

We need say very little from the humane standpoint, as we trust that appreciation of this standpoint is common to every owner and lover of animals, but the ill-care of any animal is a definite economic loss to its owner, and to the agriculturist the loss of work, and in many instances months of work, creates many a serious problem.

This month we feature the donkey poster.

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THE PLANTER'S AUCTIONEERS.

(Extracts from the Agricultural Bulletin, Bermuda Department of Agriculture, April, 1934.)

IMPORTANCE OF AGRICULTURE.

The condition of agriculture not in one country but in all is a standing pre-occupation both to the producers and to the rulers, and this it so because agriculture is an industry which no nation will willingly let die. A land which has forgotten how to rear its own food from its own soil is a land which has forgotten to live.

There is no gain in wealth or population which can compensate for the loss of that skill. It is not only that the life of a nation which has forgotten agriculture is precarious, it is not only that it may bring poverty widespread thoroughout the countryside and from there by infection spread it to the town, for even if the life of such people were as certain as the rocks, if its streets were paved with gold and its warehouses bursting with the weight of goods which they carried, it would still be a crowd of weary men.

Our flesh and blood and bones are made of the land nitrates and phosphates, earth and air, lime and water. We do not for long or without peril divorce ourselves from that which gives us birth.

MR. WALTER ELLIOTT, Minister of Agriculture (London).

TUNG OIL.

(Extract from Annual Report, 1933, *of the Imperial Institute.)*

The experimental cultivation trials with Tung Trees, initiated by the Sub-Committee on Tung Oil, have been continued in many parts of the Empire and reports have been received on the progress made. Further samples of Tung fruits and nuts produced in these trials have been examined and the results have again shown that Tung oil equal in quality to the best Chinese and American oil can be produced in the Empire.

In connection with the work of the Sub-Committee, feeding trials which had been undertaken at the Rowett Research Institute, Aberdeen, with the residual meal left after the extraction of the oil from Tung seeds, have shown that the meal is unpalatable to animals and also contains some irritant constituent. It is, therefore, unsuitable for use as a feeding-stuff and can only be utilised as a manure.

Tests carried out at the Paint Research Station have shown that the oil of *Aleuritis montana*, although somewhat inferior to the oil of *A. Fordii* as judged by the specification tests, nevertheless compares favourably with the latter oil when used for varnish-making. This result is important as it is probable that *A. montana* will be more successful in tropical countries than *A. Fordii.*

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NOTICES.

Any of our readers interested in spraying equipment, large or small, may obtain catalogues and prices on application to Messrs Cooper, Pegler and Co., Ltd., 24 and 26 Christopher Street, Finsbury Square, London, E.C. 2 and at the same time mentioning this Journal. This firm is an old established conern, that has for over 40 years specialized in the manufacture of this type of equipments. Their advertisement appears elsewhere in the Journal.

We have pleasure in drawing the attention of our readers, especially those in the parish of St. Elizabeth, to the fact that the Department of Science and Agriculture has provided the parish with an excellent bull, very well bred indeed and of dairy strain. The animal is a cross between the well known Montgomery and Jersey strains and is an unusually good looking specimen. This type of cross has given excellent results in Jamaica and bids fair to become the foundation for the future tropical dairy breed.

We hope that the livestock owners of St. Elizabeth will take full advantage of the presence of this animal in their midst and so justify the action of the Department of Science and Agriculture.

The animal is located at Williamsfield Property, Mountainside, and the Stud Master is Mr. S. H. Brodie.

The Hon. Mr. P. W. Sangster, Member of our Board of Management kindly assisted in the selection of the animal.

DEPARTMENT OF SCIENCE AND AGRICULTURE.

Arrangements have now been completed for the Public to secure services of bulls at Hope, and special stud pens for this purpose have been provided on Hope Road opposite the Government Stock Farm Gate.

The bulls which will be standing for service are:—

Hope Victor—purebred Jersey.
Fanfare —grade Guernsey, seven-eighths Guernsey and one-eighth Montgomery (Indian).

Fee.

Fee for service is 6/- if the cow does not remain longer than 24 hours. After the period of 24 hours a charge of 2/6 per day will be made for pasturage.

When cows are brought for service they should be tied to the standfast provided in the pen, until arrangements for the service have been made with the Foreman on the Stock Farm.

While every care will be exercised, the Government Stock Farm will not hold itself responsible for any accidents, damage or loss while animals are on the property.

For further particulars apply to—

The Superintendent,
Government Stock Farm,
c/o Director of Agriculture,
Hope, Kingston P.O.

HOW TO START A JUVENILE BRANCH J. A. S.

By Instructor O. P. MARTIN.

1. Ask your Agricultural Instructor or Supervisor to give a lecture to the school on the benefits to be derived from proper methods of agriculture. (In districts where there are no schools the Juveniles of the district should be invited to the Branch Meeting of the Adults to hear this lecture.)

2. Get the names of all the Juveniles who are willing to become members. Special care should be taken to invite Juveniles between the ages of 15 and 21, those who have left the elementary school.

3. No fees are chargeable.

4. The Juveniles should hold their meetings a few days before the meeting of the Senior Branch. They should elect their own officers.

5. They should give a report of their doings at the monthly meetings of the Senior Branch in order to arouse their sympathy. They should also give recitations, songs, glees, or read papers on agricultural subjects at the meetings of the Senior Branches.

6. Juveniles should decide on the particular branch of activity they intend to pursue, whether it be vegetable growing, poultry rearing, or anything else. The Agricultural Instructor should be asked for his advice.

7. Competitions should be arranged and carried through as a stimulus to the Juveniles.

8. The Senior Branch should donate a few shillings to give the Juveniles a start in purchasing minute book, seeds, eggs or anything else they might desire. They will be amply repaid for so doing.

9. All reports of competitions should be sent to the Secretary of the Jamaica Agricultral Society.

10. It is advisable that the Juvenile Societies should be run in conjunction with the schools as well as with the Branch Societies.

11. It is advisable to enlist the sympathy of the teacher of the school in the district. He will organise.

"The sweetness of low prices never equals the bitterness of poor quality."

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WHEN YOU BUY
PALM ISLE BRAND
REFINED COOKING OIL
The Excellence of this Product of Jamaica deserves your support
BUY IT NOW
Jamaica Cocoanut Producers' Association Ltd.

MARKETING NOTES.

(*Extract from Weekly Dairy Produce Notes, 15th June*, 1934.)

PRICES.

The following statement gives prices of butter, as issued by the London Provision Exchange to-day, 15.6.34, together with those of last week. Prices quoted are those of Thursday and up to 11.30 a.m. Friday.

BUTTER.	This Week.	Last Week.
	Per Cwt.	Per cwt.
New Zealand.—		
Finest ..	79/- 80/-	78/- to 79/-
First Grade ..	78/- 79/-	77/6 78/-
Finest Unsalted ..	82/- exceptionally 84/-	79/- to 82/-
Australian.—		
Choicest (Kangaroo)	75/-	74/- to 75/-
First Grade	74/-	73/- to 74/-
Choices Unsalted (Kangaroo).	75/- 76/- up to 78/-	75/- 76/-

Week ending 25th April, 1934.

South Africa delivered 6,293 packages of fresh pine apples to United Kingdom markets and the week before, 8,076 packages.

(*Extract from Weekly Dairy Produce Notes, 27th April,* 1934.)

IMPORTS OF CHILLED AND FROZEN PORK IN MARCH.

Imports of chilled and frozen pork into the United Kingdom increased during March and were over twice as large as in the same month of last year. Imports from New Zealand doubled, but supplies from Australia and Southern Rhodesia declined, leaving the total from Empire sources 62 per cent. higher on the year. The increase over the previous year in the case of foreign countries was almost 300 per cent., a large expansion in exports from the United States of America being the chief contributing factor.

In the first three months of the current year imports were 140 per cent. more than in the first quarter of 1933, supplies from Dominion sources increasing by 75 per cent. to comprise 55 per cent. of the total. It will be seen from the details furnished in the following table that the increase from foreign countries was greater, both absolutely and relatively, than the increase from Empire countries.

Imports of Chilled or Frozen Pork into the United Kingdom.

Country whence consigned.	March. 1934.	March. 1933.	January to March. 1934.	January to March. 1933.
	Cwts.	Cwts.	Cwts.	Cwts.
New Zealand ..	52,486	26,194	134,317	64,393
Australia ..	7,436	9,464	20,720	19,589
Canada ..	2,237	2,692	8,586	9,411
Southern Rhodesia ..	..	..	66	..
United States of America	28,370	5,986	96,397	15,895
Argentina ..	14,683	5,442	35,536	14,219
Brazil ..	1,917	415	3,774	1,000
Uruguay ..	..	..	39	..
Total Empire Countries	62,159	38,350	163,689	93,303
Total Foreign Countries	44,970	11,843	135,746	31,114
Total all Countries	107,129	50,193	299,435	124,507

(*Extract from Gillespie Bros. & Co.'s Monthly Report on the Produce Markets, 26th June,* 1934.)

Pimento.—Latest developments of the Gernam financial situation have naturally lessened the already small demand from that country, and the outlook at the moment is not very reassuring. London spot value $3\frac{1}{8}$ p. lb.

Honey.—Very little business has transpired since we wrote a month age. The weather has been warmer, and as usual, trade in this article is less active than in the colder months of the year. We still quote 30/- to 45/- according to colour for Jamaica, and importers generally refrain from pressing their holdings on a quiet market.

Limejuice.—Good Jamaica is scarce and wanted. We recommend consignments as soon as possible.

PENSION YOURSELF AT 60.

Plan to pay yourself a pension at 50, 55, 60 or 65 years of age, a guaranteed monthly income, to give you the pleasures you have always wanted, or to provide the actual necessities for the rest of your life.

Invest in a Dominion Life Pension Bond or Protection Investment Bond and enjoy the benefits provided:

(a) An assured income for yourself in later years.

(b) Benefit to your dependents if you die before Pension age.

THE DOMINION LIFE ASSURANCE CO.

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GERALD MAIR, - Branch Manager,

LISTER MAIR, M. T. McGILCHRIST, MISS C. JAMES,
Travelling Representatives.

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VETERINARY NOTES.

During the period from the middle of June to the middle of July, several donkeys died in the Red Hills District of St. Andrew—the symptoms being, *the animal shivering all over, the ears held in an erect position* and gradually a stiffness in all the limbs follows, and then death.

The Government Veterinary Surgeon, Dr. S. Lockett, visited the area and writes as follows:

"I advised the Secretary of the Branch Society to instruct those she comes in contact with of the necessity to properly disinfect with spirits of turpentine or tincture of iodine, all puncture wounds of the feet, stone cuts and bruises.

As you are aware the tetanus organism is an inhabitant of the soil, particularly in places where animals are kept, and for this reason they are more or less constantly exposed to infection. The only practical procedure aside from the use of preventative doses of tetanus antitoxin, which if generally used would be very expensive and of somewhat limited protective value within two months after its use, is the proper *care of the type of wounds generally associated with infection by* tetanus organism."

It will immediately be realised on reading Dr. Lockett's advice that the trouble has resulted from carelessness in the use of these animals which resulted in bruises, and further carelessness in not properly treating the wounds and bruises after they had developed.

This matter reflects very disparagingly on the inhumane manner in which our animals are treated by their owners and for which they pay by losing the services of the animals for some time, and in instances like this, *the entire loss of the animal by death.*

We trust livestock owners over the entire country will realise that humane treatment of animals is to their financial advantage and will act accordingly.

AUTHORISED PERSONS.

Return of Arrests to Quarter ended 30*th June,* 1934.

St. Andrew	1
St. Thomas	Nil.
Portland	4
St. Mary	23
St. Ann	2
Trelawny	Nil.
St. James	3
Hanover	Nil.
Westmoreland	4
St. Elizabeth	1
Manchester	Nil.
Clarendon	19
St. Catherine	22

SEASONABLE HINTS.

Every August heralds a new era of pleasant diversion to the home vegetable gardener in Jamaica, while the comparatively few who ddpend partly or solely on Vegetable Gardening for their livelihood are filled with buoyant hopes of exceeding the fortunes of the previous year, not to mention the desire to use the gain in experience by those who have in the past been guilty of many mistakes to which the inexperienced are always prone.

So much has been written in past issues of the Journal of the cultural methods of the various vegetables that our climate permits us to attempt, that readers of this Journal should by this be in possession of a good general working knowledge of the procedure necessary to produce fair returns from such easily grown crops, as, Cabbages, Lettuce, Tomato, Turnips, Carrots, Beet, etc.

There seems a considerable amount of disinclination on the part of the home gardener to go in for a wider range of vegetables than what may be obtained in any of the markets on a Saturday. On a small plot of about 25'x40' the writer has already reaped no less than twenty-four different kinds of vegetables of good quality with very little effort and has tickled many palates with the new and unfamiliar items that only a few of those in the know prize so highly.

Our stock of seeds contain many varieties that should be more widely grown both for enjoyment and for maintaining health and brief mention will be made of these in order to encourage greater popularity than at present exists.

We hope by the time this is in your hands to have fresh stocks of specially chosen Cauliflower Seeds obtained from India and which have given good results out here. Good Cauliflowers may be grown as easily as Cabbages, but respond better to a little more care in watering and frequent cultivation between rows.

Our Onion seeds we get direct from the Canary Isles and as none other but the newly gathered seeds are supplied we are assured of excellent germination.

The Chinese Cabbage is another excellent vegetable that seems almost exclusively cultivated by the East Indians mainly for their Chinese customers. In appearance it is somewhat like the Cos Lettuce (open leaved variety of lettuce) and may be eaten raw or boiled like cabbage. One very high authority claims that in flavour it is superior to Lettuce.

For home use the Telegraph Cucumber is a favourite and first rate specimens have been grown even out of season and by amateurs in Kingston.

Kohl Rabi should find a place, however small, in every garden. It is half turnip, half cabbage and makes very good eating, being very delicately flavoured and agreeable to most tastes.

Mustard and Cress are both easily grown and furnish a pleasant variation of greens from the everyday lettuce and is bound to be relished.

The Swiss Chard is a Leaf-Beet grown for its thick foliage which is eaten like spinach and will be found very agreeable. It is grown exactly as Beet and spaced about 8 to 12 inches in rows, 18 inches apart.

We expect a particularly fine lot of Fre ch Beans similar in growth to the Jamaica Red Kidney Beans, but of much finer quality and very prolific.

The suppliers were good enough to send out some samples last year which were tried with success, despite the very heavy rains they went through. As String Beans they will be highly appreciated as some pods from the trial, although old in appearance, were still quite tender and succulent when cooked.

We also expect to have available the Cuba Yard Long or Asparagus Bean, and a small supply of the real Broad Bean.

For those with a spring or other running water available, water cress may be grown to advantage. It has even been successfully cultivated in gardens here in a bed made around the water tap, also in boxes which must be frequently watered.

We are always ready to supply any necessary information to enable growers to obtain success and invite enquiries from everyone interested,

THERE ARE PLENTY OF RISKS

In raising Cattle, and yet there is

ONE RISK THAT CAN BE AVOIDED.

You need not have a single loss from Blackleg if you vaccinate every calf with Franklin Blackleg Bacterin.

DON'T WAIT FOR THE ATTACK.

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H. L. ARNETT, Falmouth,
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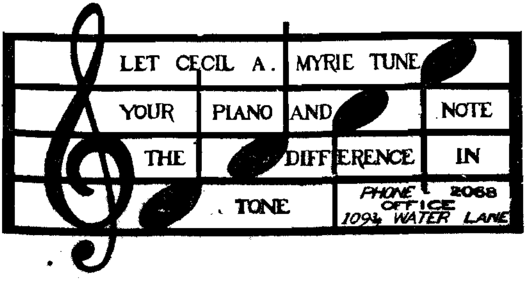
O. M. Franklin Blackleg Bacterin.



STOCK NOTES.

(Extract from Queensland Agricultural Journal, May 1, 1934.)

A Useful Lick for Dairy Cattle.

Where the dairy farmer has reason to suppose that his cows are suffering from a mineral deficiency in their diet, commonly indicated by the habit of bone-chewing, he should lose no time in correcting the condition. In the case of hand-fed cows the addition of two or three tablespoonsful of sterilised bone-meal to the feed daily will be found highly beneficial. Where the cattle are not hand-fed, a lick should be provided in troughs in the paddocks or in boxes in the milking sheds or feed stalls. This lick may be simply sterilised bone-meal itself, or if it is desired to provide the animals with other ingredients as well, including salt, the following mixture will be found of value:—

Salt	40 parts.
Sulphate of iron	1 part.
Bone-meal ..	10-40 parts according to the requirements of the cattle.

(Extract from Queensland Agricultural Journal, May 1, 1934.)

LEAN BACON IN DEMAND.

Altered demands the world over, and a steadily increasing demand for lean bacon and ham and for fresh pork products carrying a maximum of lean meat are matters with which the pig-raiser needs to become conversant. There is no call nowadays for the thick, heavy fat pork so popular years ago, nor does it pay to attempt to force on consumers the class of bacon for which they have no appetite. In order to obtain a maximum of lean meat it is essential that the pig's rations carry a maximum of flesh-forming foods, and for this purpose nothing is better than by by-products of the dairy—skim milk, buttermilk, and to a lesser extent whey, with other animal proteins like meat meal used as a supplementary or substitute for flesh formers as well as vegetable proteins in the form of pollard, pea meal, barley meal, and succulent greenfoods. Under Australian conditions the feeding of carbohydrates (fat formers) must be carried out judiciously, otherwise there will be an excess of fat and a minimum of lean meat, instead of vice versa. Whatever the system of feeding, the objective must be lean bacon, otherwise the profits will diminish and the business become unprofitable.

2,550 head of cattle were slaughtered in the Colony during the month of May, 1934.

When corresponding with Advertisers, mention the Journal of the

JAMAICA AGRICULTURAL SOCIETY.

GESTATION TABLES FOR GOATS.

(From the Goat World of May, 1934.) (S—date served; D—date due) DOES—21 Weeks.

S.	D	S	D	S	D	S	D	S	D	S	D	S	D	S	D	S	D	S	D	S	D	S	D
Jan.	May	Feb	Jun.	Mar.	July	Apr.	Aug.	May	Sept.	Jun.	Oct.	July	Nov.	Aug.	Dec.	Sept.	Jan.	Oct.	Feb.	Nov.	Mar.	Dec.	Apr.
1	28	1	28	1	26	1	26	1	25	1	26	1	25	1	26	1	26	1	25	1	28	1	27
2	29	2	29	2	27	2	27	2	26	2	27	2	26	2	27	2	27	2	26	2	29	2	28
3	30	3	30	3	28	3	28	3	27	3	28	3	27	3	28	3	28	3	27	3	30	3	29
4	31	4	July 1	4	29	4	29	4	28	4	29	4	28	4	29	4	29	4	28	4	31	4	30
5	Jun. 1	5	2	5	30	5	30	5	29	5	30	5	29	5	30	5	30	5	Mar. 1	5	Aprl. 1	5	May 1
6	2	6	3	6	31	6	31	6	30	6	31	6	30	6	31	6	31	6	2	6	2	6	2
7	3	7	4	7	Aug. 1	7	Sept. 1	7	Oct. 1	7	Nov. 1	7	Dec. 1	7	Jan. 1	7	Feb. 1	7	3	7	3	7	3
8	4	8	5	8	2	8	2	8	2	8	2	8	2	8	2	8	2	8	4	8	4	8	4
9	5	9	6	9	3	9	3	9	3	9	3	9	3	9	3	9	3	9	5	9	5	9	5
10	6	10	7	10	4	10	4	10	4	10	4	10	4	10	4	10	4	10	6	10	6	10	6
11	7	11	8	11	5	11	5	11	5	11	5	11	5	11	5	11	5	11	7	11	7	11	7
12	8	12	9	12	6	12	6	12	6	12	6	12	6	12	6	12	6	12	8	12	8	12	8
13	9	13	10	13	7	13	7	13	7	13	7	13	7	13	7	13	7	13	9	13	9	13	9
14	10	14	11	14	8	14	8	14	8	14	8	14	8	14	8	14	8	14	10	14	10	14	10
15	11	15	12	15	9	15	9	15	9	15	9	15	9	15	9	15	9	15	11	15	11	15	11
16	12	16	13	16	10	16	10	16	10	16	10	16	10	16	10	16	10	16	12	16	12	16	12
17	13	17	14	17	11	17	11	17	11	17	11	17	11	17	11	17	11	17	13	17	13	17	13
18	14	18	15	18	12	18	12	18	12	18	12	18	12	18	12	18	12	18	14	18	14	18	14
19	15	19	16	19	13	19	13	19	13	19	13	19	13	19	13	19	13	19	15	19	15	19	15
20	16	20	17	20	14	20	14	20	14	20	14	20	14	20	14	20	14	20	16	20	16	20	16
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22	18	22	19	22	16	22	16	22	16	22	16	22	16	22	16	22	16	22	18	22	18	22	18
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25	21	25	22	25	19	25	19	25	19	25	19	25	19	25	19	25	19	25	21	25	21	25	21
26	22	26	23	26	20	26	20	26	20	26	20	26	20	26	20	26	20	26	22	26	22	26	22
27	23	27	24	27	21	27	21	27	21	27	21	27	21	27	21	27	21	27	23	27	23	27	23
28	24	28	25	28	22	28	22	28	22	28	22	28	22	28	22	28	22	28	24	28	24	28	24
29	25	..	..	29	23	29	23	29	23	29	23	29	23	29	23	29	23	29	25	29	25	29	25
30	26	..	..	30	24	30	24	30	24	30	24	30	24	30	24	30	24	30	26	30	26	30	26
31	27	..	..	31	25	..	..	31	25	..	..	31	25	31	25	..	..	31	27	..	..	31	27

EXTRACTS FROM CURRENT LITERATURE.

(*Extract from the Agricultural Bulletin of the Bermuda Department of Agriculture, June,* 1934.)

Bermuda Eggs.

In 1932 imports of eggs amounted to 182,222 dozen, valued for duty at £13,775 or slightly less than one shilling and seven pence per dozen. To this price should be added freight, duty and other charges.

In the same year it is estimated that the local production of eggs amounted to 126,000 dozen, valued at £19,000 at three shillings per dozen.

On the basis of the foregoing, it appears that the Colony produced about two-fifths of the eggs consumed locally, but this does not mean that two-fifths of the eggs marketed locally were Bermuda eggs, for a large part of our output was consumed by those who raised the eggs.

In 1932 more than half of our egg imports were from the United States, and most of the others were from Canada. American and Canadian eggs are now very cheap, and it is doubtful if Bermuda poultrymen can raise eggs profitably at present prices. There is, however, a general upward trend in American and Canadian prices, and it is unlikely that eggs will long remain at their present low level.

Bermuda should endeavour to produce a larger proportion of the eggs consumed locally, and, further, should endeavour to produce them cheaply in order to encourage a larger consumption. Our average annual consumption in 1932 was little more than four dozen per person, and this average included tourists, but not those landing from cruise ships. Slightly more than one egg per week is a very low consumption.

The present import duty on eggs is five pence per dozen on British and seven pence on foreign eggs during January to May, and two pence on British and four pence on foreign during the remainder of the year. In 1932 the duty was six pence and three pence during the respective periods, without British preference. In that year, the sum of £3,132-2s. 6d. was paid by egg importers to afford protection to local poultrymen.

Trial shipment of Vegetables to England.

On 3rd April a small experimental shipment of carrots and potatoes were forwarded by S.s. "Orduna" to Messrs. J. & H. Goodwin, Ltd., Liverpool. The ocean freight was 2/1 per crate for refrigeration.

The vegetables arrived in good condition and sold for the following prices:

4 crates carrots at 6/- each
12 crates Cobblers potatoes at 8/- each
4 crates Garnet potatoes at 9/- each.

Messrs. Goodwin wrote as follows:

"We have examined each lot very carefully, and although the potatoes have made good prices, this is because of a momentary shortage of this commodity on our markets, but there are now large quantities of Spanish new potatoes arriving, which are very popular here because they are of the Kidney variety, which is the type the public prefers. Your potatoes, to become really popular, should be of this type. At present, the Cobbler variety contains too many eyes, and the Garnet is a red variety, which does not sell very well on our markets. If you could grow the Kidney type successfully, we feel that you would have a reasonably good opportunity, especially if you could market them during March and April, but not after the latter date.

We should say that the price of your potatoes Cobbler and Garnet) next week would be less than half the price at which we have sold the "Orduna" shipment, and later on in May, they would be practically unsaleable.

The carrots landed in good condition, and we shall give you a fuller report concerning marketing next week, when we have gone closely into conditions, etc."

Further experimental shipments have been made.

What is Wrong with the Tomato Rejects.

At intervals during the tomato season at the Government Packing Houses, tomatoes which have been rejected in the process of grading are picked over and examined one by one with a view to finding out the chief causes of loss. Such a survey is instructive because, although it neglects the loss of fruits rejected at the time of picking, it nevertheless gives some idea of the chief sources of loss in the crop.

The number of rejected fruits is found to vary greatly amongst the different lots of tomatoes packed. For instance, of lots examined on 18th May, one consisting of 50 kerosene boxes of fruit had less than 2 boxes of rejects—(approximately 3 per cent.) while a smaller lot consisting of 12 boxes had 3 boxes of rejected fruit (25 per cent.) Such variation is accounted for in the first place by the fact that some growers are much more particular than others as to the quality of the produce they send to be packed, rejecting most of the damaged fruit as the time of picking. But in the second place, it should be noted that great differences occur in the amount of loss suffered by different growers. Such types of loss as result from unfavourable weather or poor conditions for growth can be prevented with difficulty, but others may be reduced or eliminated by care on the part of the grower.

One cause of loss which is easily prevented by the growers, but which nevertheless is seen in some lots of tomatoes at the beginning of every season, consists in the picking of immature fruits. In the lot of tomatoes already mentioned in which 25 per cent. were rejected, more than half of these, or 15 per cent of the fruit sent in, were undersized and immature. Tomatoes which are picked while they are still dull green in colour and before they have filled out properly, never ripen to a good red colour, no matter how long they are kept, but instead they remain green and gradually shrivel up. In this instance, if more care had been taken during picking, many of these tomatoes would have been left another week on the vines, and this loss would have been eliminated.

Damage from direct fungal attack on the fruit is rare, but the production of fruit may be greatly reduced by Septoria blight and other diseases, which weaken the plant and shorten its life. They may, however, be largely prevented by regular spraying with Bordeaux mixture. Loss from insect attack is always noticeable and is often heavy. Almost every lot of tomatoes brought in to be packed has a significant percentage showing the round holes caused by cut-worms, while only too many are attacked by fire-worm at the stem-end. Both these pests can be checked, though not completely destroyed, by the use of insecticides.

The occurance of unfavourable weather is reflected in the reject box, and loss on this account can be prevented with difficulty. Stormy weather, for example will produce much scarred fruit as a result of chafing on vines and bushes, while during a dry spell the trouble known as blossom-end rot begins to show up. This was seen severely in one lot of tomatoes last year, but commonly occurs to small extent.

t shows up first in the form of irregular spots, greasy and brown in ppearance, at the blossom-end of the fruit, and, as ripening proceeds, he spots spread, turn black, and frequently are accompanied by fungal otting. Both this disease, and the splitting of fruits which occurs everely after heavy rain, are due to the palnt's unballanced water supply, nd it is believed that tbey can be prevented to some extent by keeping he soil round the plants well-worked and porous.

T. A. Russell, Plant Pathologist.

BRITISH MARKET FOE BERMUDA VEGETABLES.

Several efforts have been made in the past to introduce Bermuda otatoes in England, but without success, and it has not seemed worth hile to follow it up. While I was in Canada this time I discussed he matter with people who are in close touch with the marketing onditions in the Mother Country, and I could not help being impressed ith the possibilities of the British market now that the tariff policy f the country has been changed. Possibly carrots, onions, potatoes nd tomatoes could be marketed in Great Britain at certain seasons f the year to good advantage; at least it seems so to me, and I suggest hat investigation be made. Preliminary enquiries should be made f the steamship accommodation and freight rates by direct sailings om Bermuda and via New York and Canada, as between the three e should be able to obtain fairly frequent opportunities to make hipment.

W. R. Evans, Agricultural Assistant.

BRITISH POTATO MARKETING BOARD.

British farmers who grow one acre or more of potatoes are asked to egister with the Potato Marketing Board which is being promoted y the National Farmers' Union of England and Scotland. The chief urpose of the Board will be to regulate the flow of potatoes and prevent easonal gluts which have caused heavy losses in the past. A small urplus, whether created by a large home supply, or even the threat f a surplus, or unneeded imports, has in the past reacted unfavourably n prices out of proportion to the extent of the surplus. For example, n 1929 an estimated surplus of 16 per cent brought prices down 44 er cent, and many thousands of potatoes rotted in the fields.

The promoters of the Board are of opinion that the majority of otato growers would prefer a stabilized market with a regular price hat meets the cost of production rather than the perpetual gamble hat potato selling now is.

(Extracts from the Agricultural Bulletin, Bermuda Department of Agriculture, May, 1934.)

OPENING OF SOUTHAMPTON PACKING HOUSE.

The Government Packing House at Evans Bay, Southampton, will e opened on Tuesday, 1st May. All export vegetables of good quality, xcept celery and tomatoes, will be received for grading and packing. 'omatoes will be received at the Station Packing Houses, Paget.

The following packing rates will be charged:

'ucumbers, onions, potatoes, spinach............three pence per crate
eets and carrots..............................four pence per crate
'abbage and tomatoes........................five pence per crate

The following charges will be made for crates:

'omato crates ....six pence each
ushel crates ....nine and half pence each
'wo-bushel crates......................fifteen and half pence each

LASCELLES, DE MERCADO & CO., LTD.

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KINGSTON.

SEE US FIRST,

We are Buyers of :

COFFEE COCOA

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CIGARETTES

3d. per pack of 10.

B. & J. B. Machado Tobacco Co. Ltd.

YOUR BANANAS WILL SUPPLY THEIR OWN MANURE WITH THE HELP OF ADCO

Turns waste vegetation into rich manure.

ADCO hastens decomposition of vegetation and greatly improves its fertilising values. ADCO manure resembles pen manure in increasing humus, but is richer. It has proved its value in the hottest, driest and most exacting climates.

Prices from GRACE, KENNEDY & CO., LTD., Headquarters for all Fertilizers.

NURSERY PLANTS.

Now is the best time to order Mango Plants, St. Julians in large pots 4/- each.
White Grapes plants for April deliveries 1/- each
Flowering size Rose Bushes in 8″ pots 3/- each.
Palms of most varieties—Inspection invited.

FRED. C. JACKSON, 1 South Musgrave Avenue, Kingston.

Tomato Packing.

It is estimated that about 100,000 crates of tomatoes will be exported this season, if weather conditions continue favourable. The proper grading and packing of this quantity will call for very close co-operation between the growers and the Department.

Growers are asked to assist in the following ways:

(1) Careful cultivation to ensure good marketable fruit.
(2) Adequate dusting or spraying to control diseases and pests.
(3) Careful picking in order to exclude undersized and immature fruit.
(4) Careful grading to remove most of the unmarketable fruit before delivery at the Packing Houses.
(5) Keeping the Department well informed regarding probable quantities to be delivered at the Packing Houses each week.
(6) Prompt removal of empties and culls from Packing Houses.

It is proposed to receive tomatoes *every day* (except Sundays) during the period of heavy shipments, in order to reduce loss by over-ripening.

OUR BABIES.

(*Issued by the Queensland Baby Clinics.*)

Under this heading a series of short articles by the Medical and Nursing Staffs of the Queensland Baby Clinics, dealing with the care and general welfare of babies, has been planned in the hope of maintaining their health, increasing their happiness, and decreasing the number of avoidable deaths.

The Story of Sugar in the Human Body.

Not the least of the marvels revealed by science is that of the activities of sugar in the human body. Sugar is always present in the blood, but in extremely small quantities—very nearly one part in a thousand. Yet if this proportion is lessened the subject loses muscular power, becomes faint and, if the proportion is still less, falls unconscious and speedily dies. For sugar in minute proportion is absolutely necessary to maintain the life of all his tissues, and in its absence the first to fail are the cells of the brain. But the proportion of sugar in the blood in health is strictly limited. Should it rise above two parts in a thousand the excess passes off in the urine. If the proportion persists above this level, he is a sick man. He is suffering from diabetes, a serious and often fatal disease.

Sugar is rapidly absorbed into the blood when taken in food, but the main portion in the blood is derived from starch, which is eaten in the form of bread, potatoes, and other common foods. This starch is slowly converted into sugar during the process of digestion. Sugar, therefore, enters the blood during and after meals, but is always being gradually used up by the living body, or more rapidly by violent muscular exertion, or in the production of heat when the body is exposed to cold. As sugar enters the blood in comparatively large quantities and is being used up, often very slowly, during the intervals, how is its quantity in the blood kept fixed within such narrow limits?

There is a large gland deep in the abdomen known as the sweetbread or pancreas. This secretes a fluid which takes a very important part in the digestion of food. But inside this gland are a number of little islands of a tissue which has quite a different function. They secrete a substance necessary for the continuance of life. This substance has recently been obtained from the pancreas of freshly-killed

animals, and to it has been given the name "insulin." It has the marvellous property of converting the excess sugar in the blood into animal starch (glycogen), which is stored up partly in the muscles, but chiefly in the liver, and so rendered harmless. From these stores the sugar necessary is gradually released into the blood as it is needed.

Sugar May Cause Disease.

When the pancreas has been damaged by disease, it is unable to secret sufficient insulin, and the man suffers from diabetes. By injecting small daily doses of insulin under the skin the excess of sugar in the blood can be prevented, and with very careful treatment the man may continue for may years in good health and capable of active work. He is not cured of his disease, but its bad effects are prevented. In nearly all cases he has to continue his insulin injections to the end of his life. If he takes too little insulin his diabetes returns; if he takes too much (and it is often difficult to regulate the quantity) he becomes weak and faint, and unless he takes a good dose of sugar (which is strictly forbidden to the diabetic under ordinary circumstances) he may fall unconscious and die.

Use and Abuse of Sugar.

The self-protective powers of a healthy body are wonderfully elastic. They are sufficient against all ordinary contingencies. On a natural diet sugar is taken much diluted in milk, in fruit, or in the juices of some vegetables such as sugar-cane. Starchy foods are slowly digested, and impose no sudden strain on the tissue that secretes insulin. But pure concentrated sugar is an artificial product. Added to other foods in small quantities it is harmless and valuable. Taken in large quantities, its rapid absorption imposes an unnatural strain on the insulin-producing cells of the pancreas. Unless these are in a vigorous aud healthy condition, serious harm may result. Diabetes is becoming an increasingly frequent disease among people of the British race.

There are rare conditions in which pure sugar is the best restorative. Among these is the athlete who is "all in" after excessive muscular strain—the marathon runner, for instance. Some patients with degenerated heart muscles may stave off death for a time by increased sugar consumption; their urgent need justifies the risk. There are a few children who suffer from faint turns from decrease in their blood sugar. The most reasonable explanation is that their "islands" have been so stimulated by eating sweet things that they do not stop secreting insulin even when it is not wanted. These children need careful and prolonged medical supervision and treatment. Whether they are candidates for future diabetes is not yet known, but it is possible.

Sugar is therefore a food capable of causing serious harm when taken in excess. We have not here space to dwell on the serious conditions which have been revealed by the school dentists. It is pitiful to see children spending their pennies in destroying their teeth. Nor can we narrate how the over-eating of sweet and starchy foods has been found to diminish their power of resistance to infections. As a sugar-producing State Queensland has a special interest in these matters, for any attempt to increase the consumption of sugar beyond the limits of health is likely to recoil on the industry.

POULTRY NOTES.

(*Extract from Poultry Health News, July,* 1934.)

A Worm Control Programme Pays.
Besides it is Scientifically Correct.

The farmer plants his seed in the spring and he waits until fall to gather his harvest. But he cultivates regularly in the meantime to keep down the weeds. He is raising grain and not weeds. The way some poultry raisers let the seeds of worms become implanted in their young chicks in the spring and then wait until fall to harvest them with the Worm Caps, you would think they were deliberately raising worms instead of chickens. Worms are the weeds and they should be handled as such both in thought and action. We all know that weeds can do the most damage to corn and other grain at the very earliest age. A few weeds after corn becomes hip high isn't going to bother the corn very much.

The analogy is true for poultry. The greatest damage to the growing bird is at the early age. That is when the intestinal lining is delicate, when every bit of secretion is necessary to digest the food for the rapidly developing body and when every ounce of vitality is needed to make the gain in weight and develop a plumage that is desired. Worms and other parasites sap the very life blood from the chickens at that time. They do irreparable damage that regardless of feeding, treating and coddling later on may not be overcome. For instance, we know that poisons from worms produce a weak and flabby heart. The walls are thin and the power is gone. Such a heart cannot be rebuilt and will always remain deficient.

From the standpoint of the worm it likewise does its greatest damage while young. The worm egg hatches in the intestinal tract. The tiny young worm just out of the shell has to burrow between the villi of the intestines where it may remain protected during its very sensitive stages. The presence of the worm embryos destroys the villi, causes swelling, inflammation and the whole chain of bowel troubles, of digestion, etc., follow. For every worm that you may see in the intestinal tract when a bird is mature there have been thousands of worm embryos starting their life journey in the delicate tissues of the intestines. We sometimes think that chicks have a high mortality but they have an excellent livability as compared with worms. It has been estimated that a mature worm lays 100,000 eggs or more. A number of these are infertile and never develop. Some are never picked up while a great many of them develop in the intestines but do not reach maturity. They have done their damage nevertheless. And so one could go on almost indefinitely presenting the damaging case against the worms. Unless we do something about it the ravages of worms will go on unabated.

Unless we stop the damages from worms we can always expect a lot of crowheads, narrow backs, crooked breasted, pale and weak pullets at the time of the year when we come to reap the work of our season's efforts.

What can be done.

In the first place practice sanitation to keep the worm infestation down to a minimum. Change the yards as frequently as is practical when it is possible. When yards cannot be changed, more thorough clean up measures are necessary. However, if clean yards alone would

always solve the problem it would not be hard to keep the worms under control. Unfortunately, clean poultry raised in a virgin forest often come down with worms and coccidiosis even worse than chickens raised in your own farmyard. Why? Simply because worm eggs can be transported in the same manner, at the same time that dust and dirt are transported. This means that the wind which carries straw and dirt for miles likewise carries worm eggs. Dogs, flying birds, etc., may even pick them up, which means there is no place that one can feel is secure from worm infestation. It is usually a case of clean to-day and affected to-morrow.

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Demand the CRACKER
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BOSCO
3-Food Drink, Chocolate Malt Flavour.
CAN BE SERVED IN MILK OR ON PASTRY
AND ICE CREAM.
BETTER FOR YOUR YOUNGSTER,
says the Doctor.
EASIER FOR YOU, TOO !
DONALD S. BARHAM, Sole Agent. JAMAICA MUTUAL BUILDING.

"Pioneer"

The Best Feed
For Every Need

Poultry:

From 1 to 6 or 7 Weeks old

PIONEER CHICK MASH
PIONEER CHICK SCRATCH

From 6 or 7 Weeks to 4½ or 5 Months

PIONEER GROWING MASH
PIONEER DEVELOPING SCRATCH

From 4½ or 5 Months on

For Egg Production

PIONEER LAYING MASH
PIONEER SENIOR SCRATCH

For Table Use Broilers and Capons

Feed same as above but use PIONEER BATTERY Chick Mash in place of Pioneer Chick Mash and PIONEER FATTENING MASH in place of Pioneer Growing Mash and Pioneer Laying Mash

Turkeys:

From 1 to 6 Weeks old

Pioneer TURKEY Starter

From 6 Weeks old on

Pioneer TURKEY Grower

Pigeons:

Pioneer PIGEON FOOD

Enquiries Solicited:

WHOLESALE FROM *Adolph Levy & Bro.*

BRANCH NOTES.

All Reports received are acknowledged in this section of the Journal. This month we have only been able to put in print Notes from Branches who have not yet had a publication this year.

Branch Secretaries should **write on one side of the paper only.**

[Ed.

CLARENDON: Mt. Providence.—Meeting 10th July. Present: Instructor W. L. Shirley, 12 members and 2 visitors. After preliminaries, Mr. G. S. Neita read a paper on "Some Common Jamaica Plants and their Origin" He was heartily thanked. It was announced that the Secretary would be severing his connection with the Branch and the members decided to give him a "send off." A Committee was formed to make the necessary arrangements.

The Instructor spoke on tomato growing after which the meeting adjourned.

Woodhall P.O. G. S. NEITA,
Secretary.

Beckford Kraal.—Meeting 2nd July. Present: Mrs. E. Gordon, President, Instructor Shirley, and several others. Two new members were enrolled. Mr. D. Stone was appointed delegate to the Half-Yearly General Meeting. Authorised Persons gave their reports. The Instructor spoke on the cultivation of tomatoes. He was listened to with the greatest attention. He was thanked by the House. The Instructor promised to give an address to Authorised Persons on his next visit. The meeting closed with the singing of the National Anthem.

Beckford Kraal P.O. T. B. REEVES,
Secretary.

Pleasant Valley.—Meeting 18th HJuly. Present: Mr. C. Newman, presiding. Instructor W. L. Shirley; Agr. Headman Harris; 26 members and many visitors. Messrs. V. Coleman and W. Sweeny were nominated to serve as Authorized Persons. A resolution asking that Road No. 64 be speedily repaired was unanimously passed. The Instructor spent the day in the district doing demonstration and during the meeting gave instructions on different lines. The meeting terminated with the National Anthem.

MRS. A. A. FLYTER,
Secretary.

Tweedside.—Meeting 26.6.34. Present: Messrs. E. H. Coore, (President, Instructor M. N. Thompson, thirty-eight members and thirty-four visitors; also a large number of Juveniles, who attended for the purpose of forming a Juvenile Branch. Telegram from the Hon. Member for the parish was received relative to the Morgan's Land Settlement Scheme stating that the Government had decided to purchase the property. This was received with applause. The Secretary was instructed to reply to the Hon. Member expressing the Society's appreciation. Mr. E. H. Coore, President, was elected delegate to the Half-Yearly General Meeting. There was an interesting discussion on the formation of a Juvenile Branch. Twenty new members were enrolled. The Instructor gave an interesting address on cane cultivation, showing samples of the variety that should be planted to get the best results. The Instructor was thanked, and the meeting terminated with the singing of the National Anthem.

Alaston P.O. E. W. BOYD,
Secretary.

ST. CATHERINE: Hampshire.—Meeting 26th June. Present: Instructor O. P. Martin, V. P. DaCosta, President, twelve other members and several visitors. The President was appointed delegate to the Half-Yearly General Meeting. Mr. Martin spoke on "The Activities of Agriculture." This practical address was a timely one, and was favourably commented on by the President who stressed some of the points mentioned by Mr. Martin. The Secretary gave a report of the concert held, and was instructed to write to Mr. E. A. McNeil, M.P.B., St. Catherine. Two Authorised Persons gave their reports. After the singing of the National Anthem the meeting adjourned.

Riversdale P.O. E. A. L. ROWE,
Reporting Secretary.

Bellas' Gate.——Meeting 9th July. Present: Messrs. F. N. Barrett, President; 48 other members some juveniles and a few visitors, some of whom became members. Matters arising out of the Minutes were dealt with. There were discussions on the fertiliser sent by the Parent Society and the seeds and seedlings sent by Assistant Conservator of Forests. Two Authorized Persons reported all correct. Apology for absence was read from the Hon. T. J. Cawley, M.L.C. Mr. Cawley said he would make it possible

to attend the next meeting and he promised to get arranged a visit of the Acting Governor to the district. It was decided to hold a Fair on the occasion of the Governor's visit. Minor matters were dealt with and the meeting terminated with the singing of the National Anthem.

A. A. McCURDY,
Bellas' Gate P.O. Secretary.

Buxton Town.—Meeting 18th July. Present: Mr. L. G. Powell, presiding, Messrs. O. P. Martin and Byles, Agricultural Instructors and 10 members. Arrangements were made for a visit of members of the Parochial Board. Two Authorised Persons gave reports. Members of the Working Committee gave their monthly report. After the Instructors spoke the meeting terminated.

Linstead P.O. A. B. WALTERS,
Secretary.
22.77.34.

ST. MARY: Clonmel.—Meeting 9th July. Present: Mr. J. N. Henry, President; C. V. Henderson Instructor, and twelve members and visitors. Correspondence was dealt with. An address of welcome was presented to Mr. Henderson this being is first visit to the meeting. Mr. Henderson in replying, heartily and cordially thanked the members and expressed his appreciation for the kind words contained in the address, and promised his whole-hearted support for the interest of the Branch. The Secretary presented his Annual Report, which was adopted. The Secretary tendered his resignation after 8 years service. The Instructor and members expressed high appreciation of the excellent service rendered by the Secretary who has been the live wire of the Society, and very much regretted her departure. The Instructor spoke on the aims of the Agricultural Society and the need of co-operation to achieve these aims. A hearty vote of thanks was given him for the rousing and eloquent address. The Instructor was in the district during the day visiting holdings; he demonstrated on Mr. Jones' holding. where he gave useful hints regarding the planting and pruning of coffee. The singing of the National Anthem closed the meeting.

Clonmel P.O. (MRS.) J. R. EBANKS,
Secretary.

Mt. Regale.—Annual meeting held July 6th. Present: Mr. S. N. Mitchell, presiding; Instructor Chas. D. V. Henderson and several other members. The Instructor, in his address remarked on crowded cultivations he had noticed in the district and advised the cutting of trenches and the cutting away of unnecessary trees to admit air and light The following officers were appointed: Mr. F. E. White, President; Mr. S. Thompson, 1st Vice-President; Miss V. Thompson, 2nd Vice-President; Mrs. L. Williams, 3rd Vice-President; Mr. T. W. Mattocks, Treasurer; Miss. V. Thompson and Mr. F. E. White, Auditors; Mr. T. H. Hannam, Secretary. The audited Statement of Accounts showed a balance of 6/- in hand. The National Anthem closed the meeting.

Mt. Regale P.O. T. H. HANNAM,
Secretary.

Central St. Mary.—Meeting 5.7.34. Present were: Mr. F. A. Williams, 1st Vice-President; Assistant Instructor Henderson, many other members and visitors. The following business was disposed of:—(1) Delegates' report of Half-Yearly Conference at Highgate given by Mr. F. A. Williams; (2) Talk by Mr. J. A. Banks on the meeting held at Highgate relative to Panama Disease and One Root System. (3) Address by Mr. Henderson. on Trenching, pruning and Spacing. (4) Letter re Course at Hope, etc. The meeting closed with the singing of the National Anthem.

Richmond P.O. C. C. LEE,
Secretary.

Epsom.—Meeting 4th July. Present: Mr. W. W. Hinds, presiding; Instructor Chas. Henderson; eleven other members and two visitors, both of whom became members. One Authorised Person reported all O.K. Instructor Henderson, spoke on many important matters. The Assistant Secretary arranged for a committee meeting to adjust certain matters in connection with the next visit of the Instructor who promised to visit a few holdings then. A hearty vote of thanks was accorded him. The meeting terminated with the National Anthem.

Annotto Bay. FRED. A. EDWARDS,
Assistant Secretary.

MANCHESTER: Comfort Hall.—Meeting 13.7.34. Present: Messrs. D. D. Palmer, President; Instructor Kelly; Mr. Anderson, Inspector of Plant Diseases and twenty-one other members. Arising from the minutes, Mr. F. C. Perrins, the delegate to the Manchester Branches Associated gave a very interesting report. Mr. Kelly gave a very

interesting lecture on cane cultivation. Members agreed to obtain immediately two bags of two varieties of canes. and 32 nutmeg plants. Mr. Anderson gave a very interesting lecture on Panama Disease. The Instructor and the Inspector were thanked for their very sound and useful addresses. The non-attendance of Authorised Persons at meetings was dealt with. There was discussion on the selection of a plot for a nursery. The Instructor's suggestion that the sour orange trees on the Church premises be cut back and budded on to was unanimously agreed to. The meeting was brought to a close by the singing of the National Anthem. The Instructor, the Teacher and several members went to the school garden for a demonstration.

Comfort Hall P.O. W. A. White,
Secretary.

New Green.—Meeting 5th July. Present: Mr. K. G. Jones. 1st Vice-President, in the chair; Instructor, H. A. Darby; and about thirteen members and visitors. Mr. K. G. Jones a delegate to the Half-Yearly Meeting of the M.B.A. gave his report and was thanked The Secretary gave a report of the membership to date. The Instructor addressed the meeting on the rearing of stock. He showed how profitable it is to keep a good dairy cow. By sketches on the blackboard he showed how to recognize a good dairy animal. The following points were dealt with: disposition, head, eye, mouth, nostrils, neck, horns, ears, back, tail and coat. The Instructor was heartily thanked for his timely address as most of the members rear stock. Arrangements were made by which the Instructor would teach the bigger school boys pruning. The Secretary was elected delegate to the Half-Yearly General Meeting. After minor matters were dealt with the meeting adjourned.

Mandeville P.O. E. A. Grant,
Secretary.

PORTLAND: Claverty Cottage.—Meeting 16th July. Present: Mr. N. Willis, 1st Vice-President in the chair; 14 members and 15 visitors including 8 ladies. The Secretary was instructed to write (1) to the Parent Society asking that steps be taken to apply the Country Fires Law to the district; (2) to the Surveyor General asking that lands at present held up by that Department be rented, as there is a scarcity of products owing to lack of fertile lands. Authorised Person Haase reported no arrest. Authorised Person Wallen reported an attempted arrest. A new member was enrolled. Nine entries were received for the Yellow Yam Competition. Arrangements were made for a farewell function to the Secretary on August 1st. The National Anthem was sung and the meeting adjourned.

Skibo P.O. W. T. McKay,
Secretary.

Rock Hall.—Meeting July 9. Present: W. Harper Watson Esq., J.P., M.L.C., (a member of the Board of Management), President, Instructor, G. R. Graham; 18 members and a number of visitors. Arising out of the correspondence the Branch decided to recommend to Parent Society the necessity for protecting Yellow Sweetwood, Black Sweetwood, Prickly Yellow and Number Eleven mango. The Instructor's address was based on Citrus, Cane, and small stock. Branch discussed purchasing a pig for two guineas. Two new members were enrolled. Messrs. Morgan, Dunn, Scott, Patterson and Dunn were appointed delegates to the Half-Yearly Meeting of the Portland Branches Associated. A lengthy discussion ensued on necessity for improving the road and water-supply. Meeting adjourned with singing of the National Anthem.

St. Margaret's Bay P.O. L. Morgan,
Secretary.

TRELAWNY: Waldensia.—Meeting 2nd July. Present: Mr. J. A. Hines, President; Instructor C. M. A. Robotham, fifteen other members, a good number of visitors and the Secretary. The Instructor expressed pleasure at seeing such a large gathering. He advised special study of the April and May Journals especially by the ladies. He dealt exhaustively with the selection of seed corn. He asked members to give it their support to the resuscitation of the defunct Parish Association of Branches. A vote of thanks was given him. A discussion took place on the bad condition of the roads in the district. The Secretary was instructed to write the Parochial Board requesting improvement. It was also decided to ask the Board to erect finger posts in the district. Discussion on increased market fees was deferred. To increase membership and enliven the meetings the Secretary was instructed to invite certain ladies to become members of the Branch. Authorised Persons reported all correct. It was decided that non-attending Authorised Persons be warned to attend the meetings and report. Other matters were dealt with and the meeting adjourned.

Sherwood Content P.O. P. E. Carey.
Secretary.

Deeside.—Meeting 4th July. Instructor F. W. Kelly attended and Mr. J. Haye presided. The proposed Show] was discussed. Letter from the Parochial Board re medicine and yaws injection was read. The Authorised Person reported "all correct." The Instructor asked members to mention any subject they would like him to speak on. The President requested "Cultivation of Cabbage," whereupon the Instructor dealt with the subject thoroughly. The matter of securing a billy goat for the Branch was again brought up. The suggestion that the effort be continued till the goat is got, was heartily accepted and the Secretary was instructed to write the Parent Society on the subject. The singing of the National Anthem clesed the meeting.

Deeside P.O. E. A. Morle, Secretary.

Ulster Spring.—Meeting 9th July. Rev. J. A. Edwards presided. Mr. A. B. South, the Treasurer, gave his financial report, which was adopted. There was a brief discussion on Pimento disease. Members spoke on various subjects. Meeting adjourned after the singing of the National Anthem.

Ulster Spring P.O. I. C. Williams, Secretary.

Wakefield.—Meeting July 3rd. Present: Teacher L. A. Williams, presiding; Instructor F. W. Kelly, several other members and some visitors. Before the meeting began the Instructor gave demonstrations at the H. N. Walters' and Mr. P. Stewart's holdings and the school garden. One Autborised Person gave his report. The proposed Local Show to be held at Deeside, was again discussed. It was decided to invite the Custos to attend the next meeting in view of certain desirable Improvements to the district. The Instructor read an extract from the January Journal. He also gave a blackboard illustration on trenching. He was thanked for his able address. The meeting adjourned with the singing of the National Anthem.

Seeside P.O. E. S. Bliss, Secretary.

ST. ELIZABETH: Ginger Hill.—Juvenile Branch meeting 23.7.34. Present, A. G. Barracks, President and many other members and visitors. Three new members were enrolled. Discussion on the laying out of garden plots was dealt with, after which it was decided that each member select a garden plot and prepare it for the planting of seeds. Prizes are to be awarded for best gardens and a 'Show' of the products will be held. Discussion on raising funds to obtain literature for the Branch was dealt with. Minor matters were dealt with and the meeting terminated with the singing of the National Anthem.

Ginger Hill. L. D. Barracks, Secreatry.

Upper Pedro Plains.—Meeting 13th July. Present: Messrs. Chas. Blake, Chairman, H. W. Lynch, J. Virtue, Agricultural Instructors; P. St. L. Bacquie, Supervisor; 10 other members and 8 visitors. Tbe Secretary welcomed those present especially the Instructors. The desirability for a Juvenile Branch received full consideration. Correspondence dealing with (1) Summer Course at Hope; (2) All Island Show at Gilnock; (3) Selection of Agricultural Produce; (4) The Manufacture of Cassareep; all received full and careful consideration. Instructor Lynch gave hints re the Show and encouraged all to support it. Mr. Virtue expressed pleasure at being present and gave practical hints on necessity for thorough preparation of land for crops; how to prepare exhibits for shows; and the formation of a Juvenile Branch. Mr. Bacquie gave an impressive address. An important feature of the meeting was a Tobacco Competition. Confined to the Branch. Messrs. Bacquie, Lynch and Virtue judged the samples exhibited. Prizes were allotted as follows: First: Mr. James Reynolds; second, Mr. O. L. Rogers; third, Mr. N. Sinclair. Mr. Bacquie gave valuable hints on the selectiou of samples for exhibition. He handed out the prizes to the winners. The meeting cheered. The Secretary thanked the Inspectors and Mr. Bacquie for their help. Matters re Authorised Persons were dealt with. The singing of the National Anthem closed the pleasant and profitable meeting.

Pedro Plains P.O. C. P. Ford, Secretary.

Pepper.—Meeting 18th July. Present: Mr. O. B. Atkinson, President; Instructor Lynch and his Assistant, Mr. Virtue and 13 other members. Instructor Lynch showed the necessity of individual subscription towards the Gilnock Show. and encouraged its support. Mr. Virtue addressed meeting on coffee growing. His address was very helpful and interesting. Meeting closed with the singing of the National Anthem.

Pepper P.O. (Mrs.) M. A. Atkinson, Secretary.

Other Reports Received

Branch.	Date of Meeting	Attend. dance.	Business.	Secretary.
St. Thomas.				
Airy Castle ..	10.7.34	Crowded houses	Election of delegate to Half-Yearly General Meeting. Address to Hon. R. Ehrenstein. Many short speeches.	J. E. A. Robinson
Hagley Gap ..	27.7.34	10	Journal. Visits of D.M.O., Authorized Persons.	J. B. Heywood
St. Elizabeth.				
Bull Savanna	6.7.34	—	Bombay Mango nursery. Gilnock Show. Additions to Praedial Larceny Law. School tank. Resolutions.	C. E. Royal
Middle Quarters	5.7.34	9	Rice Industry. Pine apple experimental plot. Address by Instructor Wray	H. W. L. Wilson
Springfield	6.7.34.	21	Small stock. Address by Instructor Wray	J. A. Woodstock
St Mary.				
Baxters Mtn.	17.7.34	..	Road matters. Authorised Persons. Address by Instructor Henderson	R. J. L. Ricketts
Keith ..	22.6.34	Over 30	Report of Parish Association Meeting. Addresses by C. O. Cover, Esq. and Instructor Robotham.	S. B. Haughton
Rock River ..	23.7.34	..	Journals. Addresses by Mr. Ross and others.	J. A. Bowen
St. Ann.				
Brittonville ..	18.7.34	Over 20	Addresses by Instructor Atkinson and Mr. E. Arnett (retired Supervisor of Instructors) on Sugar Cane Industry.	C. Thomas
St. Andrew.				
Gordon Town	30.6.34	20	Report of Parish Association Meeting. Treasurer's Report. Proposed Juvenile Branch. Address by Instructor H. C. Miller, Dip. Agric., I.C.T.A.	Miss M. Duval
Content Gap ..	21.7.34	6	Water Supply. Coffee Industry.	L. A. Wilson
Portland.				
Craigmill ..	3.7.34	12	Road. Election of deligates to Parish Association Meeting. Address by Instructor D. A. Jones.	Rev. T. Lawrence
Moore Town ..	3.7.34	..	Appointment of delegate to Parish Association meeting. Address by Instructor Graham.	R. S. Anglin
Maidstone ..	11.7.34	15	Sugar Cane Industry. Appointment of delegates to Half-Yearly General and Parish Association Meetings. Poultry rearing. Additions to Schedule of Praedial Larceny Law. Address by Instructor G. R. Graham	M. L. I. Williams

Other Reports Received, contd.

Branch.	Date of Meeting.	Attendance.	Business.	Secretary.
Portland, contd.				
*Tranquility ..	9.4.34	Over 20	Water Supply, Roads, Land Settlement, Post Office. Address by Hon. K. Abendana.	N. W. McClery
*Tranquility ..	14.5.34		Praedial Larceny Law. Address by Mr. H. C. Williams.	N. W. McClery
Clarendon.				
Grantham ..	23.7.34	..	Foot-bridge. Forestry. Authorised Persons. Sugar Cane Industry.	S. Aug. Thomas
Tweedside ..	22.5.34	..	Juvenile Society. Treatment of yaws.	E. W. Boyd.
Trelawny.				
Spring Garden	12.7.34	21	Addresses by President and Instructor Kelly.	L. Coy
St. Catherine.				
Springfield ..	10.7.34	..	Appointment of delegate to Half-Yearly General Meeting.	B. A. Forrest
Manchester.				
Mile Gully ..	27.7.34.	12	Transportation of Mails. Tomato Growing. Tobacco Growing.	T. A. Morris
Royal Flat ..	11.7.34	"	Regulations re Authorised Persons. Potato Beetle. Address by Instructor Darby	H. L. Johnson
Snowdon ..	10.7.34	20	Citrus nursery. Report of Parish Association Meeting. Address by Instructor Darby.	Fred. H. Jones

* Note—Both reports received in July; too late for detailed publication.

Santa Cruz.—At the July meeting there were H. W. Lynch and A. Virtue, Instructors; J. C. Wright in the chair; and seven members. In respect to additions to Schedule A of Law 4 of 1909, the meeting suggests that Soapwood and Bitter Damsel be recommended. Correspondence was read from the St. Elizabeth Branches Associated and the Instructor explained the uses of the Association of Branches. He also gave information re the proposed Show fixed for January, 1935 and read the proposed Prize List. Information having reached the Branch that the neighbouring property of Northampton Pen may be for sale and there being a pressing need of a Land Settlement Scheme for the districts around Santa Cruz there was a unanimous agreement to ask the Government to purchase this property. The officers were all re-elected to serve another year.

Santa Cruz P.O. S. Aug. Blythe,
Secretary.

ST. JAMES: Salt Spring.—Meeting 11th July. Present: Mr. Geo. M. Anglin, President; Instructor W. D. Marr and eight members. Prior to the meeting the Instructor visited four holdings of members, and gave valuable suggestions on the suitability of the soil to the crops planted. The minutes and correspondence were dealt with and the Instructor lectured on the Cultivation of Bananas. Minor matters were dealt with and the meeting adjourned with the singing of the National Anthem.

Montego Bay P.O. Llewe E. Dillion,
Secretary.

ST. THOMAS: Thornton.—Meeting 10th July. Present: Mr. J. A. McLaren, Instructor A. H. Robertson, Esq., J.P., the President and several seventeen other members. Mr. N. A. Patterson was elected delegate to the Half-Yearly General Meeting. Authorised Persons gave reports. Mr. Robertson a visitor gave a very interesting address and was heartily thanked. The Instructor advised as to methods of controlling the Banana Borer. Two new members were enrolled. After the singing of the National Anthem the meeting adjourned.

Sunning Hill P.O. N. A. Patterson,
Secretary.

Jamaica Agricultural Society.

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The following are offered *for sale.*

Description Produce or Livestock.	Price.	Name.	Address.
Pure bred and half bred Essex and Berkshire pigs, ready for delivery	On application	W. Harper Watson	St. Margaret's Bay.
Sheep manure: reasonable prices, excellent for vegetables and gardens		Secretary	J.A.S.
Goat manure	3/- 100 lbs.	Secretary	J. A. S.
One Yearling Bullkin; Sire—imported Brown Swiss. Dam—14 quart. Big cow.	£12.	Apply Cockburn	Hagley Park Rd.
One Fordson Tractor; good condition.	£25	Apply Cockburn	Hagley Park Rd.
One Rototiller; for high-class cultivation, particularly vegetables.	£50	do.	do.
1, good size, well bred grade Holstein Bull, age 5 years old. Sire imported	On application	Secretary	J.A.S.
1, well-grown 2 year old Holstein Bulkin same breeding as above	On application	Secretary	J.A.S.
Plymouth Rock Cockerels about 8 mos. old	8/-, 10/- ea.	Mrs. Clarke	44 Beechwood Ave., Cross Roads
		Roper, Frank	Moneague

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SASHES, 2' 4" x 4' 6"	10s. per pair
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OTHER SIZES ARRANGED FOR, ALL 1¼ FINISH.

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THE JOURNAL

OF THE

Jamaica Agricultural Society.

The more people do the more they can do; he who does nothing renders himself incapable of doing anything; while we are executing one work we are preparing ourselves for undertaking another.

Vol. XXXVIII. SEPTEMBER, 1934. **No. 9.**

BOARD OF MANAGEMENT.

The regular monthly meeting of the Board of Management of the Jamaica Agricultural Society was held at the office of the Society, 11 North Parade, Kingston, on Wednesday, the 8th August, 1934, at 11.30 a.m. There were present:—Sir Arthur Selborne Jelf, Kt., C.M.G., Officer Administering the Government, President; Hon. T. J. Cawley and Rev. W. J. Thompson, Vice Presidents; Hon. A. C. Barnes, Director of Agriculture (*ex officio*), Hon. P. W. Sangster, Messrs. Sidney Barton, H. E. Lewis, T. P. V. McDaniel, U. Theo. McKay, S. M. Walker, W. Harper Watson and W. H. W. Westmorland; Mr. P. St. L. Bacquie, Supervisor of Instructors, and the Secretary, Glaister Baxter.

Dr. Jack, the Director of Agriculture for Fiji, who is on a visit to the Island, also attended the meeting as a visitor.—

The Hon. Mr. Cawley, on behalf of the Board, extended a hearty welcome to His Excellency, who replying, thanked the Board for their welcome, and expressed regret at not having been able to attend previous meetings owing to lack of time.

Apologies for Absence.

The Secretary tendered an apology for absence on behalf of Mr. D. D. Phillips.

Confirmation of Minutes of the previuous Meeting.

The Secretary stated that a copy of the Minutes had been sent to each member of the Board. They were taken as read and on the motion of the Rev. Mr. Thompson, seconded by the Director of Agriculture, were confirmed.

His Excellency said before they proceeded he would like to welcome Dr. Jack, an old friend of his, who he was glad was able to visit the Island at this time. He hoped Dr. Jack would benefit through his visit.

Matters arising out of the previous Minutes.

(a) *Statement by Secretary* was submitted as follows:—

31st July, 1934.

Gentlemen,

The Half-Yearly General Meeting took place as scheduled on the 26th July, 1934. The meeting was well attended. His Excellency the Acting Governor, Sir A. S. Jelf, Kt., C.M.G., presided over the earlier stages of the meeting.

Resolutions referred to the Board from this meeting appear below on the Agenda.

In accordance with the recently altered rule, the election of the Vice-Presidents took place, and the gentlemen holding the offices were re-elected unanimously.

Summer Course at Hope.—The Summer Course at Hope took place during the week of the Half-Yearly General Meeting and was attended by all the Instructors with the exception of Mr. Hanson who was on leave.

(Sgd.) GLAISTER BAXTER,
Secretary.

(b) *Instructor Thompson and Potato Blight: Report of Committee of Enquiry.*—The Secretary stated that the Committee which was scheduled to meet that morning and formulate a report for presentation to the Board, had not met for want of a quorum.

Mr. Cawley explained that the Committee appointed had attended at Christiana and enquired into the matter, but the further meeting fixed for that morning had not taken place.

The matter was deferred.

(c) *Resolution re Demonstration Farms:—The Director of Agriculture.*—The Hon. Mr. Barnes moved the following:—

"That the Board of Management of the Jamaica Agricultural Society give consideration to securing suitable areas in lands made available for settlement by small holders with a view to the establishment of small demonstration farms under the joint m. of the Department of Science and Agriculture and the Society."

And spoke at length giving the advantages of such a scheme.

The resolution was seconded by Mr. Cawley and supported by Mr. McDaniel, who mentioned that some years ago he had proposed a similar scheme in connection with citrus, which had not received the support necessary to carry it through.

Mr. Thompson mentioned that members of the Board who had been in the Island for a much longer period than Mr. Barnes knew some of the difficulties and problems that might beset such a motion and moved that a small Committee be appointed to explore the possibilities of demonstration farms and prepare details for the consideration of the Board.

Mr. Westmorland stated that a few years ago he had started a demonstration plot at Blackstonedge, when members of the Branch were expected to give a hand with the plants, etc., but it had been a complete failure, in that no one took any interest in it. He had continued the cultivation of the plot on his own account and had not collected the grant of Ten Pounds made by the Society as he was not satisfied that the aim originally intended was being achieved.

Mr. Lewis seconded Mr. Thompson's motion.

The Director of Agriculture said that the proper Committee to deal with the matter would be the Planning Committee. He asked that Mr. Thompson modify his motion to have the question referred to the Planning Committee.

Mr. Thompson agreed and the resolution amended to read:—

"That the Board of Management of the Jamaica Agricultural Society give consideration to securing suitable areas in lands made available for settlement by small holders with a view to the establishment of small demonstration farms under the joint management of the Department of Science and Agriculture and the Society, and that the matter be referred to the Planning Committee for their recommendations."

was unanimously carried.

(d) *Resolution re One Root System Panama Disease—Mr. McKay.*—Mr. McKay moved the following resolution:—

"That the question of the treatment of Panama Disease by the one-root system be discussed at the August meeting with a view to getting all available information and if possible support public opinion which has become rather clamant."

Mr. McKay then outlined his reasons for the resolution.

Mr. Walker said he agreed with Mr. McKay up to a point but he thought Mr. McKay should confine his contention to his own parish and each parish should stand on its own merits in this matter, as the concensus of opinion in each might be different. He stated that the one-root treatment in St. Mary in operation for the past few months, was working very admirably.

Mr. Thompson seconded Mr. McKay's motion, and Mr. McDaniel further supported it.

His Excellency assured the Board that they might rest assured that the Government was doing everything possible to control the disease, to meet the needs of the people, and to safeguard the industry. There was the point to be remembered however, that often the interest of the individual had to be sacrificed for the benefit of the industry. The Government was largely in the hands of its expert advisers and he had viewed the abandonment of the nine-root system with considerable misgiving but he thought they would have to judge by results and the Government would have to revert to the nine-root system should the one-root system prove unsatisfactory. He knew the Director of Agriculture was fully aware of the seriousness of the situation, and he hoped that the one-root system would be a success. He, the speaker, had sanctioned the one-root treatment in St. Mary, with some misgiving but he knew the Director of Agriculture thought it was the right thing to do.

Mr. McKay suggested that a statement should be made showing the effect of the nine-root system as against the one-root treatment so that it could be decided which was more beneficial.

Mr. McKay then withdrew the motion.

(e) *Banana Insurance Committee—Report.*—The following report from the special Committee dealing with this matter was submitted:

3rd July, 1934.

Gentlemen:—

Your Special Committee appointed for considering a Banana Resuscitation Scheme met on Wednesday, 20th June, 1934, at 12 noon. There were present:—Messrs. U. Theo. McKay (Presiding); T. P. V. McDaniel and W. H. W. Westmorland, the Hon. T. J. Cawley who was present, remained during the meeting.

Your Committee recommends that the question of Banana Resuscitation should be kept separate from Agricultural Credit.

They specially considered the questionnaire submitted by the Government Committee considering the question and decided that the answer to Question 1 reading:—

"Do you agree that a scheme should be introduced and controlled (a) by the Government or (b) by a separate corporation created for the purpose for the distribution of money to enable cultivators of bananas to restore their plantations after damage by storms?."

That the scheme should be controlled by a Special Board—a non-Government body.

Question 2 reading:—

"Do you consider that the scheme should be financed by an export cess on bananas? Should such a cess be collected on a basis of stems or count bunches? How, in your opinion, should the collections be made?."

Answer recommended is that a cess should be collected by the Shipping Companies on a basis of count bunches.

Question 3 reading:—

"Should the fund established by contributions thus collected from the industry be used for outright payments to planters who may suffer loss by storm and flood, or for the issue of short-term loans to enable their cultivations to be restored rapidly? That is, should the scheme be on an "Insurance" or on a "Loan" Basis?"

Answer recommended—payments outright.

Question 4 reading:—

"How do you consider that an accurate record of banana growers eligible for assistance under any scheme could best be compiled and kept?"

Answer recommended—compulsory registration of every banana grower and proper record kept of every single count bunch.

Question 5 reading:—

"Should there be any limit of area or production helow which assistanec would not be given in the event of damage? If so, please give details stating the minimum area or production you think desirable."

Answer recommended—there should be no limit of area or production below which assistance should be given.

Question 6 reading:—

"Which system i.e., "Insurance" or "Loan" would in your view be more easily operated with due regard to the rendering of speedy financial assistance and the avoidance of fraud as far as possible?"

Answer recommended—loan through Resuscitation Fund. The Committee thinks it necessary that there should be a special penal clause in the governing law to obviate fraud.

Question 7 reading:—

"Would you favour the utilization of the services of the fruit exporting Companies. for—

(a) the collection of particulars to enable banana cultivators to be registered.
(b) the collection of the export cess.
(c) the issue of loans or payments to their contractors.
(d) the recovery of loans from their contractors?"

Answer recommended—(a) No. (b) Yes. (c) No. (d) No.

Question 8 reading:—

"On what basis should payments or loans be made in the event of damage under an insurance or loan scheme."

Answer recommended:—this would be dependent on the funds available, to the Resuscitation Fund.

Question 9 reading:—

"What proportion of loss should a planter bear of the loss before he becomes eligible for financial assistance?"

Answer recommended—40 per cent.

Question 10 reading:—

"Do you agree that loans should be a first charge on the crop?"

Answer recommended—the Committee does not approve of crop security, some form of landed security is considered necessary.

Question 11 reading:—

"To what sum do you consider that the fund should be built up under—

(a) an insurance scheme.
(b) a loan scheme?"

Answer recommended—no limit should now be placed on the funds to be built up

Question 12 reading:—

"Should the application of the scheme, whether "Insurance" or 'Loan" be *compulsory to all banana growers or voluntary so that only those who desire to and* do contribute to the scheme will derive benefit from it?"

Answer recommended—compulsory.

The Committee recommends that these answers, when approved by the Board, should be submitted to the Government Committee as a reply to their circular questionnaire

(Sgd.) U. THEO. MCKAY, (Chairman).
W. H. W. WESTMORLAND.
GLAISTER BAXTER, Secretary.

Mr. McKay moved the adoption of the report and this was seconded by Mr. Sangster, who said that the Board should thank the Committee for the valuable information contained in the report which he thought must have entailed a great deal of time and thought. He thought the report would be helpful to the Government Committee dealing with the subject.

Mr. McDaniel said as a member of the Committee he was not in agreement with the findings. In the first report submitted by the Committee which report was re-committed to the Committee for further consideration, it had been recommended that the matter being of such importance opportunity should be given at the Half-Yearly Meeting (held last month) for its discussion. This view was not taken at the second sitting of the Committee. He was not satisfied with the proposed assessment of 1d. per bunch on all bananas leaving the Island, and the Government putting up certain sums as guarantee. It appeared to him to be a gamble in which Government might not be able to recover

sums advanced, and the subscriber might lose all his contribution to the scheme in the case for instance, of Panama Disease wiping out his bananas after say five years.

His Excellency said he would like to add his tribute in voicing Mr. Sangster's congratulation of the Committee in their achievement. The matter he felt was a complicated one, and he suggested that the Board move a vote of thanks to the Committee and forward the report to the Government's Committee of the Legislative Council for consideration.

The adoption of the report was carried, Mr. McDaniel dissenting.

His Excellency suggested that Mr. McDaniel send a memorandum expressing his views to the same Committee as it was the desire of the Committee to have opinions on the subject from different angles.

(f) *Royal Flat Branch re visits of Instructor—Reply from Instructor Darby.*—In reply to a complaint from the Royal Flat Branch that they had not received any visit from the Instructor for the district within the last six months, the Secretary read letter of explanation from Instructor Darby.

The Board accepted Instructor Darby's explanation as satisfactory and decided that a copy of the letter be sent to the Branch.

Statement of Accounts.

(a) *Statement for June.*—The Secretary stated that the Statement for June appeared in the Minutes.

(b) *Statement for July.*—This was submitted as follows:—

STATEMENT OF ACCOUNTS FOR JULY, 1934.

Receipts.	Estimates. £	s.	d.	Total. £	s.	d.
To Subscriptions	175	0	0	104	1	10
Affiliation and Journal Fees	175	0	0	139	6	9
Advertisements in Journal ..	200	0	0	26	11	0
Bank Interest and Sundries ..	10	0	0	2	14	6
Miscellaneous	10	0	0	..		
Bee Industry Sales	30	0	0	17	5	11
Sales Department Profits	400	0	0	..		
Government Grant	9,500	0	0	3,166	13	4
Grant for Bee-keeping Industry ..	500	0	0	166	13	4
Appropriation from Sales Department Surplus	516	15	0	..		
	£11,516	15	0	£3,623	6	8
Balance from 31st March, 1934 ..	..			1,877	4	8
Nethersole Presentation Fund	..			0	2	0
Entrance Fees Holdings Competitions	..			3	7	0
Refunds of Advances	..			217	0	0
Seeds Trading Account	..			1,302	2	1
Hire of Show Equipment	..			9	14	0
				£7,032	16	5
Less Expenditure —Contra	..			5,732	15	5
Balance	..			£1,300	1	0
Cash in hand	6	3	8	..		
Cash at Barclay's Bank Current A/c ..	11	9	8			
Cash at Barclay's Bank Deposit A/c ..	800	0	0			
Cash Royal Bank of Canada, Current A/c	132	7	8			
Cash Royal Bank of Canada Deposit A/c	350	0	0	1,300	1	0

Expenditure.	Estimates. £	s.	d.	Total. £	s.	d.
By Personal Emoluments—						
Secretary and Office Staff ..	2,014	5	0	680	9	0
Instructors and Supervisors ..	7,482	10	0	2,656	2	10
Instructors' Course at Hope ..	125	0	0	84	2	0
Instructors' Contingencies	100	0	0	45	2	4
Secretary's, Office, and Special Travelling	100	0	0	52	2	10
Printing and Stationery	100	0	0	45	12	4
Printing and issuing Journals and Reports	750	0	0	22	8	5
Rent and Rates	58	0	0	19	18	5
Rent of Telephones	27	0	0	8	18	8
Postages and Telegrams	10	0	0	4	1	8
Office Furniture: Repairs	15	0	0	5	5	4
Incidentals	50	0	0	19	10	4
Auditor's Fees	25	0	0	25	0	0
Library Books	10	0	0	10	1	2
Experiments and Livestock Subsidies ..	100	0	0	11	10	8
Show Equipment. Repairs ..	10	0	0	3	1	0
	£10,976	15	0	£3,693	7	9
Beekeeping Industry	500	0	0	199	9	7
New Office Equipment	40	0	0	30	9	7
	£11,516	15	0			
Gratuity	..		..	21	0	0
Advances to Instructors	..		..	435	0	0
Nethersole Presentation Fund ..	..		..	9	0	0
Holdings Improvement Competitions ..	..		..	194	1	8
Plant Diseases Control	..		..	24	4	0
Local Competitions	..		..	4	1	0
Seeds Trading Account	..		..	1,122	1	10
				£5,732	15	5

(Sgd.) GLAISTER BAXTER,
Secretary and Treasurer.

(Sgd.) DONALD McDONALD,
Accountant.

Questions.

His Excellency asked what was being done about increasing the membership of the Society.

Mr. Cawley said that every effort was being made to increase interest in the Society's activities, and that the number of Direct Members was increasing favourably but there was room for much improvement in other directions.

Resolution re Sugar Industry.

Mr. McKay moved the following resolutions:—

"That the Board of Management appoint a special Committee consisting of Messrs. U. Theo. McKay, T. P. V. McDaniel, Hon. T. J. Cawley, Major A. R. Moxsy and Mr. H. R. Sharpe, three to form a quorum, with Mr. Glaister Baxter as Secretary, to make the necessary enquiries in the matter of Cane Farming in Jamaica and make such recommendations as will help this Industry, Mr. McKay to be Chairman of the Committee."

Speaking on the resolution Mr. McKay said that the inroads of Panama Disease, putting considerable lands out of cultivation compelled the turning of attention to other crops, and from the small farmers' standpoint the sugar cane industry seemed the most profitable. In Trinidad 50% of the canes was grown by small farmers, and sold to the mills. It was desirable that the small farmer should be an important factor in the growing of canes; he should have the right to supply a certain quota of the sugar in Jamaica. He was giving £4 13s. 4d. per ton to the country by order of the Government, and this ought to entitle him to reapso me of the benefits to be derived from the industry.

Mr. McKay here displayed three samples of sugar for which consumer were paying £23 6s. 8d., £28, and £36 6s. 8d. per ton respectively Continuing Mr. McKay pointed out that what was necessary was th establishment of efficient factories, and a statement as to the sort c canes the factories would wish with the maximum amount of sucros matter and some definite arrangement as to prices. It was to carr out these ideas that he moved the resolution.

Mr. Cawley seconding the motion said there were two things neces sary to ensure progress, an extended quota for Jamaica and the import ation of extra machinery to enable factories to cope with increase production.

Mr. Sangster supported the motion and added that he thought i should go further. The investigation should be made by Government and the industry kept on a proper basis. From information he ha it was a fact that a lot of waste was going on in factories (through thei inefficient standards), which if reclaimed would prove more than th anticipated subsidy. Most of the factory owners being not in position to equip these factories with efficient machinery, it would be in th interest of the Island for the Government to consider making advance to well established factories so that they could obtain the necessar equipment. This would safeguard growers, manufacturers and co sumers in having a well organised industry.

Mr. McKay's motion was carried.

Pig Industry.

Mr. Watson obtained permission to have the standing orders su pended and introduced the subject of The Pig Industry. He stated th a local industry had recently been started in Kingston where salte pork, hams, and lard were manufactured. He displayed sample of these articles stating their prices. He also quoted statistics showin the amount and value of imported pig products during 1933, and aske that a census of the pigs throughout the Island be taken, as this woul facilitate the new venture.

The Chairman's suggestion that the matter be referred to the Secr tary for action was agreed to.

The meeting then adjourned for luncheon after His Excellency ha expressed his pleasure at having presided, and the hope of attendir again.

On the resumption there were present:—The Director of Agricultur Hon. P. W. Sangster, Messrs. McKay, Walker and Watson, Mr. Bacqui Supervisor of Instructors and Glaister Baxter, Secretary. Dr. Jac also attended.

The Hon. Mr. Barnes was voted to the chair.

On the motion of the Chairman, seconded by Mr. Walker, the standir orders were suspended to allow the consideration of recommendatio from the Instructors Committee which sat that morning. The repo was submitted as follows:—

Gentlemen:

Your Instructors Committee sat this morning and beg to recommend the following:-

(i) That Assistant Instructor Virtue be transferred from St. Elizabeth to Clarend to get an insight in certain crops.

(ii) That Instructor Mar be granted leave of absence during September.

(iii) That the following Societies be affiliated as Branches of the Society:—Highgat (St. Mary), and Garden Hill and Paul Mountain (both in St. Catherine).

Your Committee considered the claim from Walter Hall of Mile Gully for alleged dama to potatoes by spraying by Instructor Darby. Reports on the matter from Supervis Bacquie, Instructor Darby and Mr. Thelwell, Superintendent of Grove Place Farm, we carefully gone into and the Committee recommends:—(a) that all liability be repudiate

(b) that the Secretary be instructed to have special forms drafted by Messrs. Manton and Hart, Solicitors, which owners of holdings would be required to sign before Instructors work on their holdings (c) that Instructors be instructed not to work on holdings during the absence of the proprietors.

The Committee were unable, owing to lack of time, to get through their Agenda and recommend for consideration of the Board the unfinished matter."

On the motion of Mr. Watson, seconded by Mr. Sangster, the report was adopted.

Mr. McKay's suggestion that the unfinished matter should be taken after the Agenda of the present meeting was disposed of was adopted.

Communications.

(a) *Letter from C.S.O. re Law* 23 *of* 1920—The Importation of Animals Law, covering a notice providing that the exemption of certain animals from the operation of Law 23 of 1920 shall not apply to any animal coming from Trinidad, Tobago, or South America, was noted.

The Rev. M. Thompson, Third Vice President and Mr. Lewis came in.

Mr. Barnes vacated the chair which was taken by the Vice-President.

(b) *Letter from C.S.O. covering Annual Report Imperial Institute for* 1933, was read and the report placed on the table.

(c) *Letter from C.S.O. re additions to Agricultural Produce Law.*—Letter No. 1670/34 of date 28th July, 1934 was submitted, covering an Order adding Honey and Wax to the Sixth Schedule of Law 19 of 1926, and was noted.

Mr. Lewis again brought up the matter of licenses for produce dealers not being available for a half-year.

On the suggestion of the Director of Agriculture it was decided that Mr. Lewis write to the Secretary of the Society who would refer the matter to the Advisory Board under the Agricultural Produce Law.

Mr. Sangster said he had noticed an Order published in the Gleaner stating that no person should sell or buy honey which had not been subsided, and another stating that no person should export honey which had not been subsided. He was in agreement with the second order but he thought the first would prove unworkable and cripple local trade. He suggested that the Board make recommendations to have this order rescinded if it was correctly published.

The suggestion was agreed to.

(d) *Letter from Stewart Town Branch* expressing disapproval of the attitude of the First Vice-President towards the cattle and butter industry, was submitted and the Secretary instructed to acknowledge same.

(e) *Letter from Hon. Dr. Hudson re Agriculture and Politics in Westmoreland.*—The Secretary read correspondence between Dr. Hudson and himself regarding attempted activities of Branch Societies in politics. There was considerable discussion on the subject during which the Supervisor of Instructors stated that at the direction of the Board some time ago he had enquired into the matter but had found that the Instructor was not implicated.

Mr. McKay said he had not been satisfied with the investigation at the time it was carried through and he was convinced that Dr. Hudson had good reason to complain. He further stated that some Instructors though they did not openly take part in the public meetings of prospective Members of the Legislative Council, influenced Branch members.

He said that the Board should not go as far as dismiss or transfer the offending Instructor but this should be made an occasion to bring clearly to all Instructors the necessity to steer clear of politics, otherwise they should be severely dealt with. He moved that Dr. Hudson

be asked if he would welcome an enquiry and should his reply be in the affirmative, Messrs. McDaniel and Walker with the Secretary be asked to proceed and enquire into the matter.

This was agreed to.

Half-Yearly General Meeting—Matters referred.

(a) *Resolution re Co-operative Marketing of Honey.*—The Secretary read the following resolution:—

Whereas the majority of the apiarists of the Colony feel that a co-operative organization of Beekeepers for the marketing of honey and the general welfare of the industry is immediately requested:

Be it resolved that this Half-Yearly General Meeting of the Society request their Board of Management to co-operate in the organization of such a concern.

Mr. McKay moved that Mr. Sangster be asked to prepare a scheme on which he thought they could form a Beekeepers Co-operative organizations for the good of the industry.

Mr. Sangster asked that the matter be referred to a Committee with Dr. Hudson and himself as members.

This was agreed to.

(b) *Propaganda for encouragement of better agricultural methods and Government assistance.*—The following resolution was submitted:—

To invite suggestions as to the best methods to be adopted to bring home to the agricultural grower, especially the small grower, the advisability and necessity of listening to and following up-to-date expert advice in the cultivation and handling of his crops thereby to enable him to find a sale for his crops to his best advantage.

The Board decided to refer this to the Planning Committee.

(c) *Resolution re protection of Native Industries—Poultry, Cattle and Dairy.*—This resolution asked that the Government be asked to place on the list of articles free of duty materials required for the above industries such as utensils and feed not produced in the Island.

It was agreed that as there were no statistics before the Board regarding the whole question, the matter should be deferred and the Secretary directed to prepare all the necessary information.

It was also decided that the resolution asking for admission duty free of all Agricultural Implements, Live Stock and Dairy Equipment be dealt with in like manner.

(d) *Resolution re Committee of Enquiry—Citrus Industry:*—The Secretary read the following resolution:—

Whereas the citurs industry of the Island is likely in the near future, to become one of our major industries if properly fostered and organized: and whereas the industry at the present time is in a disorganized condition; and whereas the Government has already committed the country to the development of this industry: Be it resolved that the Government be asked through the Agricultural Society to immediately set up a strong Committee for the purpose of enquiring fully into this industry in all its phases—viz.: growing, propagating, picking, transportation, marketing, (local and abroad), shipping and advertising and make recommendations to the Government for its being organized upon proper business lines.

The discussion which followed disclosed that the Government was at present doing a great deal toward this end. The Board however decided that the resolution be sent to the Hon. Colonial Secretary with the request that it be referred to the Advisory Committee dealing with the Citrus Industry.

(e) *Resolution re Appointment of additional temporary Government officers to ensure better harvesting of citrus, etc.*—The following resolution was submitted:—

That it is the opinion of this Half-Yearly General Meeting of the Jamaica Agricultural Society that the proper carrying out of the recently amended citrus regulations especially as concerning the efficient harvesting of fruit is of such vital importance to the industry that the Government be approached with a view of their appointing temporary additional

officers doing the citrus season to encourage the carrying out of the regulations especially by small farmers and if necessary enforcing them.

After discussion the Board decided that it was not necessary for additional officers to be appointed for this purpose, but that the present staff of Instructors, Inspectors of Plant Diseases and Inspectors of Produce be mobilized to pay special attention to this matter during the citrus season.

(f) *Development of Vegetable Industry.*—The following resolution was read:—

Owing to the necessity of introducing new industries as substitutes for those on the decline: be it resolved that this Half-Yearly Meeting of the Jamaica Agricultural Society, urge upon the Government the necessity to take definite steps to develop the Vegetable Growing Industry for export as an Island-wide concern.

It was decided to refer this to the Planning Committee.

(g) *Resolution re establishment of Irish Potato Experimental Plot.*—The following resolution from the Manchester Branches Associated was read:—

Whereas potato growers are in need of assistance respecting the determining of suitable varieties of seed potatoes, the methods of culture, preventing and treating diseases, the best manures, etc.: Be it resolved that the Jamaica Agricultural Society be respectfully asked to start immediately, or as early as possible, a series of experimental plots to obtain reliable information on these questions.

It was pointed out that experiments were being carried out at Grove Place, Manchester, towards the end desired in the resolution and the Secretary was instructed to advise the Association accordingly.

(i) *Resolution re amendment of the Licenses under Agricultural Produce Law.*—The following resolution was read:—

Be it resolved that Travelling Licenses under the Agricultural Produce Law be discontinued.

It was decided that a Committee consisting of Messrs. McKay, McDaniel, Phillips, Walker and Watson, be appointed to go into the matter and advise the Board.

(j) *Resolution re inefficiency of treatment of Yaws.*—A resolution from the Bellas Gate and Aberdeen Branches complaining of the inefficacy of the treatment for yaws was submitted and the Secretary was instructed to inform the Branches that attention was being given to this matter by the Authorities, and outline the steps being taken.

As it was late afternoon it was suggested that the election of new members be taken and the meeting adjourn.

New Members.

On the motion of Mr. McKay, seconded by Mr. Lewis, the following were elected members of the Society:—

H. Maynier, c/o Jamaica Banana Producers Association, Kingston.
H. A. Ableton, P.O. Box 366, 10 Duke Street., Kingston.
Sir William Morrison, 85 Harbour Street, Kingston.
M. B. Baker, "Tarentum," Spanish Town.
Ralph Carman, "New Coulston," Mandeville.
Miss May Farquharson, "Fort George," Stony Hill.
Mrs. Edith Carman, "New Coulston," Mandeville.

Dr. Jack expressed his pleasure at having been permitted to listen to the deliberations of the Board which he found extremely instructive and interesting.

The meeting then adjourned to Wednesday, 5th September, 1934, at 11.30 a.m.

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EDITORIAL COMMENTS.

Organization.

The month has seen much activity on the part of citrus shippers in an endeavour to form an organization which will ensure the more orderly marketing of the citrus crop of the colony. Such an organisation will it is hoped also produce minor economies in sales costs, and will no doubt to a certain extent influence favourably the improvement of the standard of our pack and the maintenance of such improvement. It is a happy augury that the movement is being gently piloted by the Hon. Director of Agriculture as this fact leave the producers of citrus, the farming element, with confidence that their interest will be protected and that they need have no fears that their interests may be sacrificed to those of the shippers.

Without Government co-operation and legalization of the powers of such an organisation it is of course doomed to failure as it can only bind its members, and if shipping of citrus may be done other than through the channels of the Exchange, it is to be expected that a mushroom growth of outside shippers would promptly occur who would then not be amenable to the control of the organisation and so the very thing aimed at,—i.e., control, would vanish and the effort becomes entirely impotent. It is not a natural human action to seek control, and it is only when stark necessity is present that any portion of one's individual initiative is willingly surrendered. It has been quite apparent, however, to the shippers themselves that disorderly marketing and unbridled price cutting on f.o.b. quotations have done themselves and the industry no good and so like good business men they have decided to do something about such an unsatisfactory situation.

This new movement in Jamaica is not new in the larger and more advanced countries of the world, and points very definitely to the fact that the necessity for proper mobilization and organisation of effort is being gradually realised as an advantage and necessary to our further agricultural progress.

Many other major industries will yet be organised and controlled.

REVIEW OF CURRENT LITERATURE.

We acknowledge with thanks the first issue of "Local Industry Trade Journal."

The Publication fills an important island need.

We wish it every success and compliment the publishers on their first issue.

It is of course unique in that it is circulated to the interested public free of charge.

We draw the attention of our readers to a most interesting article contributed to the Agricultural Journal of British Guiana by Dr. J. G. Myers, D.Sc., F.E.S., F.Z.S., entitled: Observations of a Journey from the Mouth of the Amazon to Mt. Roraima and down the Cattle-Trail to Georgetown.

The attention of those of our readers who are interested in the cold storage of various fruits and vegetables is directed to an article on the subject which affords some valuable information on the question, appearing in Tropical Agriculture from the pen of Professors C. W. Wardlaw, E. R. Leonard and R. E. D. Baker.

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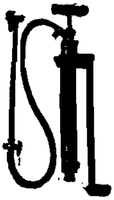

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STOCK KEEPING FOR THE SMALL FARMER.

J. W. Howe, Headmaster Farm School.

Since it is not possible for the Small Farmer to pursue any one branch of agriculture very extensively, it is therefore necessary for him to conduct his farming operations along diversified rather than specialized lines. Since too, his acreage is usually more or less limited, he must plan his farming business so as to have revenue from as many different sources as possible, and not to have all his eggs in one basket. In this connection the raising of livestock is, or should be, an important consideration, since it is one phase of agriculture which not only gives returns all the year, but it assists materially in maintaining the fertility of the soil,—a very important item in building a sound agriculture in the Island.

There are many reasons as to why livestock should be kept. The following are a few:—

(1) It aids in improving and maintaining the soil fertility, as farmyard manure is an efficient, and cheap way of fertilizing the soil;

(2) It makes it possible for the farmer to diversify his crops, and provides more sources of revenue;

(3) It makes possible the utilization of cheap feeds, and products of the field which otherwise would be wasted;

(4) It provides a return in cash all the year, and does not limit returns to certain seasons, as in the case of many crops;

(5) It makes for a more stable type of agriculture, as stock requires care every day of the year. It cannot be neglected;

(6) It makes possible the planning of a long term program, and those who have stock take a greater interest, both for the present and future in their work.

Classes of Stock which can be Raised by the Small Farmer.

The Small Farmer can raise any class of stock that can be raised by the large penkeeper, but with a small acreage certain classes of stock are more practical than others. The classes of livestock which do not require large pastures will prove more adaptable to the small farmer, since his acreage is often fairly small.

The classes of stock for such conditions include poultry, (including ducks, geese, and turkeys), goats, pigs, rabbits, besides of course some of the larger type of animals such as cows, mules and donkeys.

Poultry.

Considering the enormous increase recently in the amount of eggs and poultry imported to Jamaica, poultry is one class of stock which can be kept by the small farmer with good results. In the first place the initial expense is not high nor is the cost of feeding. Combined with this is the fact that there is a ready market for *good* eggs and poultry, and little difficulty will be encountered in selling the products.

The poultry keeper should decide definitely on a good breed, and improve his flock, with a definite idea in mind.

The Rhode Island Red, Plymouth Rock, Wyandotte, as well as several other breeds can be raised for both eggs and meat. These breeds are good layers, and when dressed make a very desirable bird for the table. The breeds mentioned have proved to be satisfactory for conditions in Jamaica, and as they are already well established here no difficulty will be found in securing good stock.

Should the poultry raiser decide to go into the business of egg production, then he would, be well advised to establish a flock of birds of the Mediterranean breeds, such as Brown Leghorns, White Leghorns or Minorcas. These breeds are purely egg layers and make an inferior table bird. If birds of the Mediterranean breeds are kept, the poultry raiser should also have a few hens of the heavier breeds such as Plymouth Rocks, or Rhode Island Reds, to use for incubation purposes. The Mediterranean breeds do not sit as a rule and make poor mothers, and it will be necessary to have some hens of the heavier breeds for efficient hatching.

In the business of selling eggs it is imperative that only fresh eggs be sold. A market is quickly lost by selling eggs which are not fresh, and strict attention must be paid to this question if the poultry raiser is to secure satisfactory results.

Ducks.

Ducks are comparatively easy to raise in Jamaica, and provide a good return under ordinary conditions. Ducks like geese, are capable of doing well with only an average amount of care, and thrive on pasture. For proper fattening and development however, attention should be paid to proper feeding.

Geese.

This class of poultry does not seem popular in Jamaica, but could be raised to a greater extent than at present. Geese are the easiest of all classes of poultry to raise, and are capable of making good gains on very low grade feeds. Geese do well on pasture and can rustle for themselves. They should however, be given a supplementary feed for developmnt. This is especially necessary when the birds are being fattened.

Turkeys.

Turkeys are perhaps the most difficult of all classes of poultry to raise. The stage at which the largest losses occur is when the birds are young. Wet weather is especially conducive to large losses and the poults should be sheltered until they have properly developed.

Turkeys do not do well if closely confined, and they should be allowed ample room for pasture. For fattening they should be penned up. If they are allowed to run at large all the time the meat becomes tough and sinewy. Turkeys require similar feeding to hens.

Goats.

This is one class of livestock which does well in Jamaica, but one to which little attention is given to improvement. Goats in Jamaica are raised mainly for meat, but more attention should be paid to raising them for milk. A good goat will produce enough milk daily for the average family, which would materially reduce the amount of tinned milk used.

The breeds tried here and which have proved satisfactory are, Toggenbury, Saanen, and Anglo Nubian. There is ample scope for improvement in this class of stock, especially with regard to milk production.

Goats give good returns on the investment, and the cost of upkeep is low since they can thrive under conditions which are unfavourable for other classes of stock. Secure good stock, especially a good ram, and improvement will readily be seen.

Pigs.

The raising of pigs is one branch of livestock to which the Small Farmer should pay more attention. Pig raising has the advantage of being one branch of livestock work which does not require a great deal of care, can use cheap feeds to advantage, gives good returns, yet does not require a large cash outlay to begin with. There is a demand for *good* pork, but good pork cannot be produced by allowing the pigs to forage for themselves, giving them little or no attention, and fattening them by means of running them at large and hoping they will get enough to eat. Pigs raised under such conditions cannot help but produce tough, stringy pork.

For the Small Farmer who wants to go into the business of raising pigs, the best method is to purchase a bred sow. The sow should be of good type, fairly short in the leg, deep in the side and broad over the back. Do not select a long rangy sow which is upstanding, as she will produce pigs which require too long to fatten, and pigs which will not use feed to the best davantage.

Pigs should be kept in an enclosed pen, but should have ample pasture. The pen should be well drained and the sleeping pen should be high and dry.

The young pigs should be weaned at 10 weeks of age and those males not to be used for breeding purposes, should be castrated at weaning time.

The breeds of pigs adapted to Jamaica are Berkshire, Poland China, Duroc Jersey, Large Blacks. Any breed except those which are white in colour should do well if properly cared and fed.

In feeding pigs, refuse from the table can be used, together with such feeds as bananas, vegetables, cane, etc. Most crops can be fed to pigs to advantage, but it must be remembered that pigs cannot use a large amount of roughage or coarse feed. They will do better if fed a liberal ration of corn or grain of some kind, along with the green-feed.

To obtain the best pork, pigs should be alaughtered at from 175 to 225 pounds weight. Over this weight they carry too much fat in proportion to lean. The heavier a pig is the more feed is required to produce a pound of gain in weight. Consequently if pigs are slaughtered at the weights mentioned above, the greater will be the profit. Nothing is to be gained by keeping pigs for slaughter until they are over the weight mentioned.

Rabbits.

While this class of stock is raised to some extent in Jamaica, little has been done for improvement of the stock. Rabbits do not require expensive housing but must be kept dry. Feed is not costly, as the feeds found around the home can be used to good advantage. A use is provided for such feeds as might otherwise be wasted.

Rabbits are raised mainly for meat, and good returns can be obtained from a small cash outlay if this class of stock is properly handled.

The most popular breeds here are the large ones, such as Flemish, Giant, Belgian Hare, Chinchilla and the New Zealand Red. Animals of these breeds produce good meat in large quantities and cost no more to raise than the smaller animal of inferior breeding.

Cattle.

To the Small Farmer it is usually not possible to keep a large herd due to lack of pasture. The dairy cow to the Small Farmer is infinitely more useful than the beef cow, since it provides the family with milk, and a ready sale can usually be found for the calves, either for breeding, for milk, or for veal.

If the Small Farmer has enough acreage to keep a cow, he would be advised to do so. Since he is anxious to secure a quick return on his investment the dairy cow will do more for him, than will a beef animal, since he can sell the milk. To wait for three years before he is able to sell his beef animals, and getting practically nothing in return during that time, is something the Small Farmer should bear in mind, when selecting the type of cattle to keep.

Donkeys and Mules.

While some means of transportation is required by the Small Farmer, very few of them can go into the raising of donkeys and mules for sale, nor is it advisable except under certain circumstances, because the return from the investment on this class of stock is slow, and the original cost high.

Method of Livestock Improvement.

For the Small Farmer the cheapest and most efficient method of livestock improvement is by means of "grading," or the using of pure-bred or well bred sires on inferior dams. By this means the stock raiser can improve his stock in a reasonable time at the minimum cost. By using a pure-bred sire on his stock, he can produce uniformity in his stock and improve their quality.

The stock raiser should have a definite object in view, and breed to it. He should too, strive to have each generation of the stock an improvement over the previous generation. Unless he does this, then his breeding operations are not going to be successful.

Feeding.

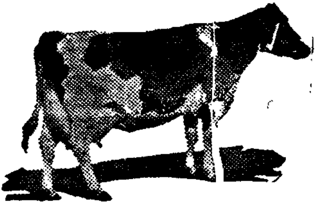
The cost of feed for an animal is usually about half the total cost of raising it. Considering this the stock raiser should plan to use only those feeds which will give him the best returns at the lowest possible cost. He should plan on raising as much of his feed as he can, since it will reduce the cost considerably, and when planning his operations for the year, he should include feed for his stock in the crops he is planting.

There is a definite place for livestock in Jamaica, but unless careful attention is given to proper handling and proper feeding, little improvement in the livestock will be made. Improvement can only be accomplished by having a definite breeding policy and breeding to that policy. If an animal is well bred, proper feeding will do the rest. Since it cost as much to raise a scrub animal as a well bred one, the man raising scrubs is really not getting the greatest returns for his money.

There is no reason why a high class of livestock should not be raised in Jamaica by the Small Farmer, but unless he is willing to give attention to improved handling and proper feeding then little progress along the line of livestock improvement will be made.

NOTICE.

Parties interested in the importation of poultry and Belgian Hares should immediately communicate with the Secretary of the Jamaica Agricultural Society, who is arranging importations early this Fall for certain members of the Society.



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THE HEALTH OF COCONUTS IN JAMAICA.

Mr. W. H. Edwards, D.I.C., F.E.S., Government Entomologist and Acting Government Microbiologist, during the Summer Course of the Department of Agriculture and Science at Hope during July of this year delivered a lecture on the Health of coconuts in Jamaica which prepared in his usual style was a most thorough, fair and valuable Survey of the situation. Considerable concern had developed among coconut planters during 1934 and 1933 on the appearance of what appeared to them serious diseases of coconuts in their groves. We have been fortunate in obtaining a verbatim report of the Lecture which is now reproduced for the benefit of those of our readers who were not present to listen to it.

Ed. Note.

Gentlemen,

As you are aware, my substantial duties as Government Entomologist in this colony is the study of insects and this with the main object of advising planters on the application of methods by which the depredations caused by destructive species can be controlled.

At present, however, I am also fulfilling the duties of my colleague the Government Microbiologist who is absent from the island on leave.

During the present discussion, I shall therefore, deal not only with the insect pests but with the diseases which affect coconut trees in this island.

In other words, our discussion will comprise all the parasites that you may have found interfering adversely with the growth and bearing of your palms.

As the incidence of, and especially the amount of actual damage caused by pests and diseases largely depend on the vitality of the plants, I shall also take that opportunity to submit to your attention certain facts about the condition under which most of our coconut trees are growing. With a discussion of specific diseases and pests, we will thus have what we may call a Health Report of Coconut in Jamaica which will serve as a basis for the discussion in which I hope you will all join to make us benefit by the experience you have yourselves acquired in the fields.

It is with great pleasure that after I shall have completed a general 'expose' of the situation that will allow you to grasp the situation in its whole, that I shall answer any question you might care to ask me about the parasites which affect coconut in any particular district or plantations.

I. Nature of the Trouble.

In beginning this lecture I cannot refrain from thinking that I am entering upon a most complex subject.

I have said complex because we shall not have to deal with specific and well known diseases only but also with a great variety of, I will say, ailments which since a few years have manifested themselves either singly or simultaneously and in more or less mild forms in most localities where coconut grows.

In certain districts extensive outbreaks of bud-rot have occurred. In other groves, cases of that disease though assuming a rapid evolution have remained isolated.

Numerous cases of the better known leaf diseases such as Bitten-leaf can be seen in many groves.

We frequently hear complaints that groves which are not affected by pests or diseases are not yielding the crops that were expected.

That the trees do not hold their nuts until complete maturity.

We see that other trees do not shed, as would be normal, the older leaves. These remaining hanging along the trunk as a thick sheath of dry material afford shelter to wasps which building scores of nests therein interfere with cropping operations when the nuts are picked on the trees.

In other cases trees do not put up new leaves at the rate the older ones fall off, they develop what is locally known as 'pencil points'. This phenomenon which is sometimes caused by a mild form of bud-rot also occurs when the trees meet with persistant unfavourable environmental conditions or when they have become very old.

Outbreaks of scale insects have occurred sometimes in conjunction with the leaf troubles mentioned above, sometimes in groves which are otherwise healthy.

These scale insects belong to species which since a long time have been recorded all over the island. They are considered mild parasites of relatively small economic importance. They can be found in healthy groves where their presence passes unnoticed.

Since the last hurricanes, damage by the Large Black Hard-Back Beetle has become more frequent, whilst infestations by the Shot Hole Borer have in some districts become prevalent.

The shippers of nuts and the oil manufacturers on the other hand complain that an important proportion of the nuts they receive from certain districts are of very poor quality. The core of many nuts gathered from under the trees from which they have fallen naturally, and which therefore, should have reached perfect maturity often ferment and decay within a short time.

Another very common sign of unhealthiness which manifests itself in a striking manner in many parts of the island is a premature and intensive discolouration of leaflets in patches on both sides of the midribs of fairly young leaves.

The necrotic portion of such leaves are often affected by certain fungi such as Pestallozia palmarum Cke. and Diplodia spp. and by Scale insects such as Asterolecanium palmae Ckll. Other mild parasites also frequently infest the weakened fronds.

As you realize I did not exaggerate when I said that the subject under discussion presented very many aspects and was an exceedingly complex one for study.

The causes and the methods of treatment of the more important diseases are well known. So as to clear the ground we shall first deal with these. After a discussion of the environmental conditions which there are good reasons for believing, predispose the trees to the milder but numerous troubles referred to above, we shall conclude this lecture by a discussion of the insects which attack this crop in the island.

II. The Diseases.

Bud-Rot.

Destructive outbreaks of Bud Rot have always periodically occurred in Jamaica, usually after hurricanes.

Our record show that heavy losses were sustained from 1891 to 1910

Since that time the sanitary measures which have been applied have diminished the losses, from time to time, however small groups of trees have died; the disease having never been completely eradicated from the island.

In the recent past the disease has been somewhat prevalent in several groves, especially in the Western parts of the ialand where the plantations have suffered most from strong winds and hurricanes.

There is *no curative treatment* for Bud-Rot but the spread of that very contagious disease can be *effectively checked* by systematic *destruction of all trees beginning to show signs of infection.* To be thoroughly effective such sanitary measures should be applied as soon as infection is detected.

Though the ultimate result of the disease is the death of the palm by a rot which destroys the growing bud in the centre of the cabbage, the evolution of the disease can assume various aspects. When infestation starts in the bud or heart, the central column of unexpanded leaves rots at the base and falls over, leaving the outer or more mature leaves still green and healthy. In such cases the bunches of nuts remaining intact, growers are frequently tempted to leave the trees untreated until they have reaped the standing crop. By so doing they lose sight of the fact that to save a few nuts they risk the contamination of neighbouring trees. In spite of the healthy appearance of the older leaves of a tree so affected there is no chance of its recovery when its only growing point has been destroyed.

I therefore have to call your attention to the *absolute necessity* for stemming the spread of that disease in your groves or in your district, of *felling immediately* every tree found infected and of *destroying by fire* the infected tissues of the upper part of the plant.

The Department of Agriculture has a staff of Plant Disease Inspectors whose duty is to advise planters whenever information with regards to the best methods of carrying such measures of sanitation are needed. Those field officers also have to see that the law which protects the interest of the majority against the possible resistance of individuals and which specified that all cases of contagious plant diseases should be eradicated without delay by the owners of the lands on which such exist, is strictly carried out. I am certain that you realize that the nature of the duties of the Plant Disease Inspectors makes them deserve the unrestricted collaboration of all the community so that their activities may yield the results we expect.

Bitten-Leaf Disease.

That disease is caused by the parasitic fungus Theilaviopsis paradoxa, v. Hohn: the 'pineapple fungus' familiar to sugar cane growers in most parts of the world.

As its name implies, the disease manifests itself by lesions on the leaflets which appear to have been bitten off at the ends. Those amputated portions however, never have such clean cut edges as is the case when the bud of palm trees has been attacked by the Black Hard Back or Rhinoceros beetle which we shall discuss later.

With Bitten-leaf disease the leaves nearest to the heart become reduced in length, this being due to the fact that the upper portion of the central ribs of the leaf become destroyed by the parasitic fungus. At the upper part of those stumps, the leaflets on both sides are also either reduced in length with shrivelled and darkened ends, or they bend over and hang down at the points weakened by the fungus. The heart leaves become diseased whilst still tender and before they push into the light.

That disease usually becomes prevalent when the plants have suffered through protracted periods of drought and also after unusually heavy and prolonged rains.

Leaves of a Coconut tree infested by the 'Bitten Leaf' disease.

Treatment.

Prune all diseased leaves and cut down the central spike of still unrolled leaves until no more discoloured leaflets are met with and destroy by burning all the diseases tissues thus removed.

Sprinkle the cut ends and the central part of the cabbage with a mixture of one part each of common salt, lime and copper sulphate powdered and intimately mixed together. About 1 lb. of the mixture can be applied per tree.

3. Unhealthy Conditions of Coconut Palms with reference to Conditions under which the Plant grow.

Conditions of ill-health which manifest themselves as poor returns of crop, dropping of nuts and various forms of leaf troubles such as Leaf Bronzing, etc.

The parts of a coconut plant most likely to show signs of unhealthiness, even if the seat of the trouble is in the roots, etc., are obviously the leaves. The next symptoms would be revealed by the fruits.

Leaf troubles have occurred frequently during recent years. In most cases, however, these cannot be ascribed to specific organisms.

So as to understand the causes which bring such symtoms of poor health it is necessary to study the conditions under which the palms grow.

I will therefore ask you to study with me some of the factors which there are good reasons to believe have contributed to a great extent in creating the present state of affairs with regards to the diverse symptoms of unhealthiness exhibited by coconut trees in many parts of the island.

The susceptibility of most of our coconut trees towards pests and diseases is in very many of our groves primarily due to the state of debility of the trees. Having little stamina they suffer to a noticeable extent from the attacks of mild parasites which otherwise would be of no economic importance.

To prove the correctness of such an assertion, it is necessary to elucidate the following points:

1. Does the incidence of the troubles mentioned above in individual groves or in particular districts throw light on the subject?

2. Taking the environmental conditions into consideration, is there a correlation between the age of the trees and the severity of the damages caused by the diseases or ailments already mentioned?

3. When we are not in presence of specific pests or diseases, are the symptoms of unhealthiness suggestive of physiological troubles?

4. Do the plants appear to respond to cultural conditions which increase the vigour of the trees?

5. Does the evolution of the symptoms of unhealthiness or the nature of the secondary infection by parasitic organisms confirm the assertion that the unhealthy plants are struggling against conditions adverse to luxuriant growth?

Since the last two months the nature of my duties as Government Entomoligist and Acting Microbiologist, has given me the opportunity to devote considerable time to the study of those problems and I have taken every opportunity to make as many observations as has been possible in the fields. I have also scrutinized the history of our coconut groves.

If the precedents of a human being generally create his future, we can say and this with even sounder reasons, that the history of a coconut

grove not only explains its present condition but also allows us to predict its future with very fair chances of accuracy.

Going to the early part of the century we see that there was under coconuts in Jamaica, approximately half the area which is to-day under that crop and that the expansion of the plantations due to tempting prices occured during a comparatively short period of about ten years.

Do not those facts throw some light on the present situation? I have good reasons for believing that most of the lands which were hastily plantred during those years of exceedingly rapid extension were not very suitable for the cultivation of coconuts.

Other facts aggravated that state of affairs. In the early part of the century whilst a destructive hurricane destroyed many of the long established groves, the expansion of the banana industry took the best lands, relegating the new plantations of coconuts to areas where no other crop could be economically grown.

It thus happened that the total area which during a long past had remained fairly constant, had been doubled during a period of ten years, whilst a large proportion of the plantations have been shifted to lands of inferior grades.

If no serious trouble occurred when the plantations were young and the soil still virgin so far as coconut groves were concerned, now after more than 25 years of constant cropping without any cultivation or manuring, that aspect of the problem has become worse. This results in that when climatic conditions become unfavourable during long periods (as on the whole has been the case during the last three years) the trees show signs of debility in a more acute form than would normally have been the case.

You have all observed that fruit trees which through adverse climatic conditions, etc., cannot recuperate strength after a bearing season frequently show signs of exhaustion. They lose an abnormal amount of leaves, of twigs and sometimes even of fair-sized limbs. Such a state of debility which may produce forms of 'die-back' are, when caused by pbysiological distrubances only and not by diseases, corrected by proper cultivation and by the application of manures.

What do we under similar conditions do for coconut trees? Why should we expect those plants to escape one of the laws of nature which make that a plant must meet with conditions sufficiently favourable to growth to bear good crops year after year without showing signs of debility.

Let us examine other conditions under which coconuts are growing in many parts of the country and continue a study of the reasons which have contributed in creating the unsatisfactory state of affairs which now results in the losses already mentioned.

You might tell me whether I am right when after having seen so many groves which appear to have been planted in a past which goes back to the times of the early settlers, I suspect that the majority of the trees in the groves which survived the banana push and which normally are on the better lands, have not since a long time passed the economic age.

When we hear complaints that what used to be the best coconut properties in the golden ages are not now yielding as they used to do; that the trees there have a tendency of growing 'pencil points,' etc., should we not enquire whether most of these groves have not now passed the age when they normally yielded their maximum crops, instead of saying that there are outbreaks of new and still unidentified diseases. Much harm can be done by drawing conculsions which engender

pessimism and apathy, whilst overlooking a state of affairs which there is no doubt should receive our careful consideration.

In my opinion the diminution in the average yield on many properties as compared with what is claimed to have been obtained in the past is due to the facts that:

(a) Many groves planted on the best lands are now over age;
(b) Most of the younger groves have been fairly recent extensions on lands of poor quality where no other crop could be economically grown,
(c) Except in rare cases no cultivation is done. Lands apt to become water logged during prolonged rains are not drained in spite of the fact that coconut is a plant that requires a large quantity of air in the root system;
(d) Except in very few cases nothing is ever done to correct any other defective conditions of the soil.
(e) In many cases the trees are planted too close to each other. On growing old their root system interferes with each other.

Taking now the small holdings, which usually are on the higher lands in the interior of the island, into consideration, we find that the peasant proprietor when opening his lands, plants his first two or three nuts in reasonably good situations. The flatter parts of his holding being gradually taken by food crops, by bananas, etc., all new coconuts allowed to grow are ultimately relegated to the edge of gullies and precipices.

I extract from an article published by my worthy friend Mr. Carrington, who was the editor of the Journal of the Agricultural Society, the following passage, which in my opinion depicts very clearly the situation in many localities:

> 'There are numbers of coconut trees, well advanced in age to begin, hanging on the sides of steep hills so to speak by their toe nails, the roots practically all dead on one side and the surrounding soil manifestly exhibiting unmistakable signs of continued wash. How coconut trees exist and bear at all under such conditions has always been a conundrum most difficult of solution.'

Those remarks describe exactly the state of affairs with regard to the majority of coconut trees on those small holdings which are not situated on the coastal belt or on the alluvial soils alongside rivers.

So far as lands not already under other crops and thus available for extension of coconut groves are concerned, we have somewhat reached the economic limit. Having already planted palms on lands which were not suitable to the plant we must expect that the returns of nuts per tree will decrease gradually year after year and that our trees will show an increased susceptibility to the effects of adverse climatic conditions or towards pests and diseases, if we do not, where it is possible, help to counteract the defects by adequate methods of cultivation.

Returning to the symptoms of unhealthiness exhibited by the leaves of many of our palms, I would at this juncture like to call your attention to a certain number of facts which throw light on other important points relative to the matter under discussion. I shall also ask you to check the correctness of my remarks by making your own observations in the fields when you will next week return to the country.

I shall first call your attention to the relation between the degree of incidence of the 'leaf troubles' and the age of the trees.

You will always observe that the symptoms of unhealthiness referred to as Bronzing, etc., always occur on the older trees and that it is very

exceptional that younger palms are affected and this even when the young trees grow in proximity to older unhealthy ones. Virulent parasites would not show such differentiation with regards to the age of the plants.

You will furthermore observe that in the case of young trees, it is only when they grow under very adverse environmental conditions as far as the soil is concerned that they show symptoms of the unhealthy conditions referred to above, and also that this happens sooner when their root system has not got a sufficient area to expand normally.

You will also see that in groves where the palms have been allowed to grow much too close to each other (this is often done with the view that many of the trees will become naturally eliminated by hurricanes) the symptoms of unhealthiness appear as soon as normal expansion of the roots of the growing palms causes them to interfere with each other.

Another interesting point is what for a lack of term, I shall call 'the road-side effect.' Visiting groves where the palms show symptoms of unhealthiness over extensive areas you will frequently find that when following contour roads all the trees situated at a lower level than the road and which receive the washings from the gutters are not affected whilst all those in poor soil on the higher bank show the symptoms in a pronounced manner.

You will also find that where the nuts are collected and husked in the fields the trees naturally manured by the rotting husks left on the ground form by their luxuriant foliage and heavy bunches of nuts a sharp contrast with neighbouring trees which drop their nuts prematurely, etc.

The East Indians have a proverb which says "The coconut does not bear if man does not come to him and talk to him daily." This proverb has been founded on the observation that the most prolific palms are those near the huts. In Jamaica also you will observe that in areas where trees show bronzing of the leaves and other signs of unhealthiness, those growing near houses or stables from which they receive a certain amount of manuring remain healthy.

I have visited coconut groves which had been described to me as being cultivated and growing on good soil, good crops of sugar cane or of bananas being simultaneously obtained there in mixed cultivation. In the majority of such cases I have found that the 'cultivation' was really done for the benefit of the other crops growing between the palms and at the detriment of the latter. So far as the palms were concerned the cultivation amounted to severe pruning of all the roots as near to the trunk as possible. Coconut is decidedly the Cinderella of our crops. Because it takes from four to five years to manifest symptoms of ill treatment, we never hesitate to do to the coconut what we would never do to other trees. Do we, for instance, climb on any other fruit tree by digging a cutlass into the trunk at each step as does the man who climb the palms to reap nuts? You will see later that those wounds thus are the doors by which certain insects penetrate in the soft tissues of the body.

I also wish to call your attention on a frequent cause of collapse of groves where the cultivation of bananas or sugar cane has been abandoned. When such plantations are on lands which necessitate drainage, the drains are kept so long as the bananas or canes are cultivated, when the cultivation of these crops is abandoned the drains are allowed to get filled with soil, etc., until they function no more with result that the coconuts suffer.

Cultivation of coconut in most groves of the island can only be described as being essentially 'contemplative;' when there is human intervention we unfortunately must say that usually can only be described as being of a destructive nature.

In several districts the peasant farmers have evolved an empirical method of treating their trees by burning trash, etc., around the trunk, it would be premature for me to say whether such treatments merely acts by the action of the ashes as a manure.

All the aspects of that problem have not yet been elucidated. My learned friend the Agricultural Chemist and myself have started series of experiments to investigate whether treatment of the trees showing these symptoms of unhealthiness such as bronzing of the leaves, etc., by adequate cultivation or by the application of manures, could so improve the health of the trees that they would overcome the effect of the mild fungoid and insect parasites which have been found to infect them.

In biological science no question is finally closed. I hope that the next time we meet I shall have something more to tell you on the subject. We shall now deal with those insects that attack the crop.

4. Insects attacking Coconuts in Jamaica.

Scale Insects.

Sporadic outbreaks of Scale insects have always occured in coconut groves.

From the earliest reports of the Botanical Department which was the Official Agricultural Institution in this island prior to the formation of the Department of Science and Agriculture, we see that such outbreaks occured from time to time, but though they have sometimes been so severe as to cause serious concern to the planters and to their Agricultural Advisers, those outbreaks have always been of short duration and have subsided without expensive methods of control having to be applied.

The reasons for this is that the reproduction of those pests is affected to a very great extent by atmospheric conditions and that those pests have in Jamaica natural enemies which can control their number in a very effective manner. Amongst the most important of these useful auxiliaries are, small, round and convex beetles known as Coccinellids or Lady Birds beetles, these are well distributed all over the country.

The species of Scales which are more frequently found on coconut trees in Jamaica are Asterolecanium palmae Cockerell and Vinsonia stellifera Westwood.

Under normal conditions and in healthy groves the biological balance between these scales and their natural enemies is such that the pests are naturally held under economic control and it is not necessary for the growers to interfere.

Sometimes, however, outbreaks do occur when human intervention becomes necessary. When, for instance, groves suffering from the attacks of other pests or diseases or through physiological troubles become infested by scale insects, it becomes imperative to rid the trees from these parasites so that they may resist successfully the diseases.

Eradication on an economic basis of scale insects on tall coconut trees by means of insecticides, is, we all realize a very difficult proposition.

As we have no reason, however, for discussing the eventuality of scale eradication over large areas, I shall only mention now the practical methods which should be applied to prevent those pests from spreading in the groves.

By applying sanitary methods systematically and at the inception of infestations control of those pests will cost very little whilst at the same time you will save a diminution in the crop, increase the power of resistance of your trees towards disease and prevent the possible spread of the pest over larger areas.

Wherever limbs of coconut trees are noticed showing signs of being infested by scale insects all such leaves should be severed and heaped at a fair distance from the trees; after about a fortnight those leaves which will have dried should be burnt. Such cleaning operation costs about 1d. per tree or 2|- per 20 trees.

Scale insects being attacked by several natural enemies such as Lady Bird beetles and by minute wasps who lay their eggs inside the body of the scales, the object of not destroying the leaves immediately after they have been cut is to allow those useful auxiliaries to hatch out and fly back to the trees before the cut leaves on which they are in association with the scales are destroyed. By removing the cut leaves at a distance of about 50 feet from the trees the natural enemies of the pest are not destroyed and can fly back to the trees to continue their useful work whilst the crawlers or young scales having no wings cannot reach new trees and perish.

Trees heavily infested by scales should be sprayed with a Soap-Kerosene-Jeyes emulsion or with Lime Sulphur.

Preparation of Soap-Kerosene-Jeyes Emulsion.

A stock emulsion which can be preserved for a long time is prepared as follows:

Soap, Hard	1 lb.
Water	2 galls.
Kerosene	4 gals.
Jeyes	2 gals.

The soap is first dissolved in boiling water, the kerosene is then gradually added a little at a time, churning violently all the while with a paddle or large spoon until a creamy liquid results. The jeyes fluid is then added and the whole well mixed.

For spraying coconut trees this stock emulsion is diluted in 10 parts of water.

Preparation of Lime Sulphur.

Lime, Unslaked	8 lbs.
Sulphur	8 lbs.
Water	50 gals.

Place the lime in a barrel; slake with a small amount of water; sieve the suplhur and add alowly to the slaking lime, add enough cold water to complete the slaking, stirring constantly. When slaking is finished (from 5-15 minutes) add the required amount of water.

Lime sulphur having not only considerable insecticidal value for the destruction of scale insects but being also an excellent fungicide which proves most useful for keeping fungoid parasites under control its use in preference to oil sprays is under local conditions recommended in most cases.

The Shot Hole Borer: Xyleborus perforans Woll.

'Bleeding' of the trunk of coconut trees can be frequently seen where fallen trees have been left lying over the ground in close proximity to standing palms.

Closer examination reveals that the liquid exudes from minute holes and that these lead to tunnels bored by minute insects known to science under the name of Xyleborus perforans, popularly known as 'Shot hole borers.'

Those insects breed mainly in the trunks of fallen trees or in the injured parts of living trees. When they have been allowed to breed in large numbers amongst fallen trees, etc., and when their food supply begins to decay, they often migrate to living trees.

As a rule however, they infest in preference trees dying from diseases or having reached an old age, or which are in a weakened condition through adverse seasons, lack of proper cultural methods, etc. The deplorable habit of the boys reaping nuts who, when climbing along the trunks bury at every step their machettes in the tissues of the bole is also a frequent cause of infestation.

Remedial Measures.

1. As far as economically possible destroy all breeding materials lying on the ground;
2. Paint the affected portions of living trees with the concentrated Kerosene-Soap-Jeyes Emulsion referred to for the treatment of scale insects;
3. Once this has dried give a thick coat of coal tar to the affected parts thus choking all the entrances to the tunnels;
4. Do not allow the reapers to injure the trunks of the trees by sticking their cutlass into them whilst climbing to reach the nuts.

THE RHINOCEROS BEETLE: Strategus titanus.

Since a few months the peculiar appearance which leaves of palm trees assume when they have been attacked by our local Rhinoceros Beetle (Strategus titanus, Fab.) has become a striking feature in many of our groves.

Attacked leaves present the appearance of having had a number of leaflets on both sides of the midrib clipped with a sharp cutting instrument. When the affected leaflets are situated at the tip of the leaf, the frond is trimmed to end in an obtuse-angled point.

That insect normally breeds in decaying wood. It lays its eggs in soils rich in humus and the larvae which are plump white grubs of large size live on decaying vegetable matter in which it remains buried.

The increase in the Rhinoceros beetle population in our plantations is another indirect result of the hurricanes and stormy winds which we have had during recent years.

Amongst the dead trees, which after those hurricanes have been left to rot on the ground in coconut groves, the pest has found an abundance of food and very suitable places to reproduce themselves in numbers. As little could economically be done to remedy the situation, we are now faced with an increase in the number of another of our enemies. It is however, consoling to think that its depredations are unlikely to become of serious importance if elementary measures of field sanitation are reasonably taken whenever its presence warrants intervention.

The adults are the dark coloured, or Black Hard Back Beetles of large size which frequently enter houses at night flying around lamps with a buzzing noise.

These beetles bore into the tissues of the cabbage of coconut palm trees. When their tunnels reach the unopened young leaves in the

central bud, contiguous rows of leaflets become severed with the result that when the leaves expand they come out with symmetric series of such leaflets partly cut or missing.

When the tunnel is bored lower down the cabbage and touch the growing point this is killed and the whole plant dies.

Control. of this pest in infested groves consists primarily in the destruction of breeding places. All vegetable refuse lying on the ground should then be burnt or cut in small pieces and scattered over the ground to dry or rot rapidly.

Termites.

White Ant or Duck Ant.

Large carton nests of Duck ants are frequently found around the bole of coconut trees.

On other occasions the nests are in the gound and it is the covered pathways built by those subterranean species which are seen along the trunk leading from the ground to the cabbage of the plants.

Those insects live mainly on dead tissues of plants but once they have started to attack the dead tissues around wounds, etc., they sometimes extend their tunnels into adjoining healthy tissues.

Control.

Coconut trees should always be freed of duck ants.

When the arboreal species are concerned the nests can be broken and the pieces destroyed by fire. The part of the trunk where the nest was situated should immediately afterwards be scraped of all rotting tissues and painted with coal tar.

When the subterranean species are concerned, treatment becomes more difficult. Fumes of sulphur and of arsenic have to be pumped by means of an instrument known as a 'white ant exterminator' into the soil where the nest is situated.

5. Conclusions.

Gentlemen,

We have just reviewed what I consider the salient points with regard the field aspect of the coconut industry in this Island.

Some of my remarks about the standard of cultivation might have appeared to you very critical. My reasons for stressing such unsatisfactory conditions with regards to cultivation, lies in that my duty is to call your attention to all the aspects of the problem and mainly to those that are responsible for losses. I hope that those criticisms have been interpreted as I intend them to be, i.e., as being of a constructive nature, in the sense that they will help you to give attention to remedy an unsatisfactory state of affairs where such exists.

We cannot expect to eradicate pests or diseases from our fields if we do not make sustained efforts in applying measures at control or if we allow crops to grow under such unfavourable conditions that their resistance or vitality becomes impaired.

With regards to the various symptoms of ailments mentioned during this lecture, I must say that I am not satisfied that from the theoretical point of view all the aspects of this complex problem has yet been completely elucidated. The observations already made, however, have allowed me to give you advice which, I am certain, will allow you to minimise the losses frequently sustained.

There are no sound reasons for attributing the state of poor health of many of our groves to the outbreak of any one specific disease. By drawing hasty conclusions from vague symptoms of unthriftness, destructive pessimism is engendered.

These minor troubles observed, have in my opinion, resulted from the cumulative effects of several factors, which in certain districts, have intervened simultaneously. We cannot change climatic conditions and prevent droughts or hurricanes, bnt we can improve our cultural methods and field conditions so that the effects of such cataclysms would be minimized.

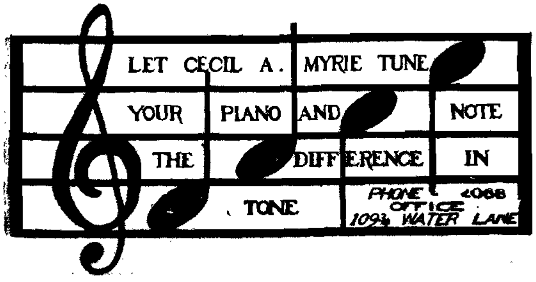
We have also reviewed the more important pests and diseases.

In each case the recommendations I made with regards the measures of control are those which will give you the best results and which experience has proved to be the most economical.

Some of the elementary sanitary measures recommended, such as the removal from growing trees of all dead or dying leaves infested with scales or parasitic fungii, may at first appear very difficult of application and somewhat aleatory as regards practical results. You will however, find that supervised by experienced growers, sanitation conducted in a rational and systematic manner gives very satisfactory resnlts, and that this can be done very economically, i.e., at a total cost of approximately 1d. per tree.

I realise that on account of the depressed state of the market, it is, in most cases, very difficult to apply treatment necessitating the use of chemicals. The margin of profit made on the crop, is at present so low that the application of the cheapest fungicide or insecticides on an extensive scale becomes comparatively onerous. I have mentioned several such treatments, which, if applied at the inception of infestation will, however prove economical in that they will check the spread of pests and diseases.

If I have succeeded in convincing you of the advisability and the need of applying measures of field sanitation, coupled with adequate cultivation, I am certain that our efforts will bear fruit and that in the majority of cases your troubles will be considerably alleviated. It is with such a hope that I thank you for the keen attention you have given me. It is with much pleasure that I shall now answer questions you may like to ask.



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Speeches delivered at the meeting of the Board of Management of the Jamaica Agricultural Society on the 8th August, 1934,

By Mr. U. Theo. McKay.

TREATMENT OF PANAMA DISEASE ONE-ROOT SYSTEM.

Mr. Chairman and Gentlemen:

The one-root treatment of Panama Disease of Bananas has been exercising the minds of the public for quite a long time. We know that the Society and the Department of Agriculture have laid down certain rules for the treatment of Panama Disease and we were quite willing to adopt these rules and to go on following them, but of late public opinion has come to the conclusion that the remedy for Panama Disease is a little more drastic than the disease itself and I would like the Board of Management to give their opinion after listening to the Director of Agriculture as representing the Government side, as to whether it is for the benefit of the island and of growers to adopt the one-root system. We all know that the present system is that where one-root is found with the disease eight healthy roots are destroyed. They are destroyed because it is the opinion that by destroying those healthy roots the spread of the disease will be prevented, but practical experience shows that while one-root is found diseased and eight roots around that root are cut down, around those roots again there will be found another diseased root necessitating the cutting down of another eight healthy roots, and thus if that goes on and we have about ten cases in an acre, it is correct to say that the whole area is decimated by the Inspectors of Plant Disease. Now the contention of the public which has some amount of reason is that they be allowed to reap from the eight healthy roots, because by cutting them down we are making the grower poorer and reducing the export value, and yet still their method as far as I can see does not prevent the eventual destruction of the plot of land when once Panama Disease has appeared. While the treating of the one diseased root by the Government Inspectors, cutting it out and treating it with oil, not allowing the small settler to treat it himself, and allowing the men to reap the eight roots around would eventually lead to their getting more out of their acre of land than by butchering—for that is what it amounts to—their eight healthy roots. The cry that is going up is that the grower be allowed to reap what he can. It will also lead to this that the Government will pay less compensation. Some amount will be saved in the Government coffers, because at present they pay for all the eight roots that have to be destroyed. While I do not mean to dogmatise I think it would be very difficult for the men of science to prove that the nine root system has been really a benefit to the Island in checking the spread of the disease. I want to say that any law or rule which forces people to break it is vicious and should be removed. I know that on account of the cutting down of the eight roots many persons that would have reported on the one diseased root to the Plant Disease Inspector, will cut down the affected root stealthily and take it away, and that may lead to the rapid spread of the disease as it is not treated. I am not asking for no treatment. I am asking for treatment of one root and the saving of eight roots. I think you will agree with me that my representations are not altogether

valueless, in fact they have made the concession to Portland and also to St. Mary. The other parishes are asking for the same concession. I should like to read the following extract from a statement made by a scientific officer:—

Extract from Doctor C. W. Wardlaw's Report on the Banana in Jamaica.

"As far as the merits of the quarantine regulations are concerned, when it is considered that *Fusarium Cubense* can grow and spread through the soil, it is obvious that the present nine-root treatment does nothing to destroy or control Panama Disease. Financially the destruction of Plants under the quarantine regulations does nothing but magnify the loss. In the writer's opinion this should be replaced with treatment to destroy infected material and prevent its use for planting."

That is from a gentleman who holds a very important position in the West Indies and I think that gentleman visited Jamaica once in connection with Panama Disease and although his ideas have been pooh-poohed I think the general public are inclined to accept his observations as having been correct. I do not think that he could have been wrong in that instance and right in so many other instances. I commend to you gentlemen that you should ask the Government to allow the one-root system to be adopted throughout the whole island. It would not mean that they would do away with the treatment by the Inspectors of Plant Disease. I think it would be rather dangerous to allow the small man to treat his diseased roots and that should be the work of the Inspectors. At present valuable time is being lost through the treatment of the eight roots. If the one-root system is adopted treatment will be more quick and rapid. If anything is done on the lines I suggest it will retard the spread of the disease much more than the present method of nine-root operation.

Reply to Mr. McKay's Speech.

The Hon. A. C. Barnes, Director of Agriculture, in reply said the subject of Panama Disease was a hardy annual and he would like to suggest if he might, that the principles of logic could hardly be applied to the treatment of Panama Disease. Conditions differed largely throughout the Island, climate, rainfall, soil, etc., and so far as he had been able to observe there were and would be for many years considerable areas fertile and productive where the incidence of Panama Disease would be considerably small. He had had the privilege of traversing those areas and he had also visited them a few weeks before that, and he was amazed at the development that had taken place and the productivity of those districts. During the past few weeks he had traversed banana lands in Hanover and other places and coming back through the Rio Minho Valley he was pleasantly surprised to see the vast areas of banana plants whilst passing along the road to the Station at Frankfield. The banana industry had that very serious problem to face, and he did not think the Government or the Agricultural Department could be reproached for any drastic steps that they had taken in the past years. It had recently been decided that in St. Mary the nine-root treatment had served its purpose. They had had to modify the method to ensure the prompt treatment of the diseased root. He was glad to hear from Mr. S. M. Walker that the new method lately adopted was achieving good results. Only one other

parish had approached him with the object of securing modification in the method of the treatment. That was St. Catherine. A short time ago he had received a deputation from that parish of representative planters who represented to him the needs of certain districts of the parish and he had informed them that in districts where the incidence of Panama Disease was so high as to make the normal treatment impracticable, Inspectors would be expected to exercise their discretion, but the Department could not advise Government to adopt the one-root treatment in other parishes until the results in St. Mary over a period of one year were known. He felt that at least a year was required before a decision in that direction could be made. They were dealing with one factor, namely, the infected material. It was on account of that factor that the nine-root system was originally instituted. They could not claim that they knew nearly enough about Panama Disease. The subject was under constant enquiry. They had a staff engaged upon the direct and indirect study of the problems arising from the disease, such as the development of immune varieties of bananas and the replacement of infected bananas by other plants. The fact remained that in Hanover, Upper Trelawny and Manchester, bananas could still be said to be very healthy on the whole. In some parts the incidence of Panama Disease was small, and the Inspectors of Plant Disease were being encouraged to do everything possible to get the confidence and co-operation of the people so that the disease could be kept under control.

DEMONSTRATION FARMS.

The Hon. A. C. Barnes, Director of Agriculture, speaking on this subject, at the August meeting of the Board of Management said he had brought a motion on this matter forward in order to permit of its being discussed in time for proper consideration to be given to it so that if the scheme which he had in mind were approved, provision might be made in the draft estimates subject of course to the approval of Government.

There had been a feeling that the Jamaica Agricultural Society and the Department of Science and Agriculture were not getting down to the needs of the small settler in the way they should, and that the educational work which these two departments were endeavouring to do was not meeting with the success it deserved because of the absence of proper demonstration farms where proper methods and other matters incidental to the conduct of agriculture could receive attention by trained people, and where those engaged in agricultural pursuits for their livelihood could go and see the best methods actually in operation. The motion followed, he thought, most aptly upon that moved at the Half-Yearly General meeting by Mr. Syer to give consideration to better methods for what he called "agricultural propaganda." It seemed that ocular demonstration was going to be much more valuable than the talking which went on so frequently and at such great length at the various agricultural meetings. Not that he would deprecate for one moment the making of speeches at meetings, rather would he encourage them, because they did help to maintain interest in the work of the Society and of the Department, but it seemed to him that those lectures, talks and speeches ought to be supplemented by something concrete which he thought could best be provided by small demonstration farms. The actual cost of these farms should not be excessive.

They already had men. The plant material was available free of charge. There would be a small capital outlay necessary for the initial breaking in of the land, etc., and there would have to be expenditure for fencing, gates and charges of a similar nature, but after a few years, it seemed to him that many of these farms or all of them could be almost self-supporting. They could not bear the salaries of the Instructors and other officers, but would at any rate be able to meet their own wages cost and show a small profit. He doubted very much whether any of them in their agricultural propaganda work would get very far unless they could actually get close to the needs of the people and one of the best methods to accomplish this end would be to establish demonstration farms where people could go themselves and see the operations conducted and see the results of these operations. He did not think it necessary to go into close details but he had in mind the Government programme in regard to the development of the citrus industry, which could he felt, only achieve success if people were shown the results of careful cultivation and the treatment of the citrus trees. The Agricultural Department realised that the success of the citrus campaign depended in a large measure upon the follow-up campaign in the country districts where the plants found their permanent home, and that work again would receive valuable support by the establishment of demonstration farms such as he had in mind. It seemed to him that where small settlements were opened up or were already in existence they had groups of people who were waiting for such a service as tbat. He did not think any difficulty should be experienced in securing the initial areas of land. These farms would bring home to the people the proper methods which they should adopt. He commended the resolution to the Board.

Speaking further on the resolution, the Director of Agriculture said that the motion specified areas in lands made available for settlement by small holders so that it presupposed the existence of the necessary audience. The intention was to utilise the services of the Inspectors of Plant Diseases and the Agricultural Instructors. Criticism had been levelled that there were two groups of men going round the country covering the same districts, one of whom dealt only with plant diseases and the other with agricultural instruction. The plan would be to endeavour to get these officers to perform exactly the same kind of work, the one to assist in the control of plant diseases and the other in agricultural instruction. It was not his intention to go into details that day but the farms would have to be under the control of the Department of Science and Agriculture and the Jamaica Agricultural Society, and they would have to be operated by paid labour. Anything on a voluntary basis, he thought would fail and he imagined that that was one of the difficulties that had beset previous attempts of that nature. Suggestions had been made that this or that Society should establish a demonstration plot. He doubted that they would fulfil what he had in mind. They wanted to secure and maintain the interest of the people and he believed they could do it through the establishment of demonstration farms.

A Correction.

The statement shown in the August Journal with reference to the increase consequent on Tariff Arrangements referred to exports from Canada.

CITRUS.

(Extract from Tropical Life, Aug.-Sept., 1934).

Jamaica is up in arms against the freights charged on her fruit sent to England, a distance put at 4,000 miles. Citrus fruit pays 4s. 8d. per box, against 1s. 3d. only for Palestine to London, 2,000 miles; whilst the 12,000 mile journey from Australia costs 4s. 3d. a box, still 5d. below the Jamaica rate, and 3s. 6d. is the rate on fruit from South Africa, 7,000 miles away. Of course, the questions of quantity and regularity of supplies have to be considered; even then it does seem as if Jamaica should do better than at present against the rate of 1s. 10d. for sending their fruit to Canada.

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A NOTE ON THE PRACTICE OF INTERMIXING VARIETIES OF SUGAR CANE IN THE FIELD.

By H. H. Croucher, Agricultural Chemist
and
M. S. Goodman, Superintendent of Public Gardens.

It is a common occurrence in Jamaica to find two or three varieties of sugar cane growing intermixed in the same field. In most cases the mixing has been brought about through force of circumstances, and has arisen because there were insufficient tops to complete the planting of the field, or when supplies became necessary no tops of the variety already in the field were available. The practice is one to be avoided from all standpoints. It is felt that if data showing the full amount of the relatively big losses which may occur can be put before the cane planter, greater efforts may be made to ensure that all canes in one field are of the same variety.

The practice of mixing varieties is wasteful both from the point of view of tonnage, which is the main interest of the field, and the sugar content of the juice, which at the moment is the chief concern of the factory.

The tonnage and sucrose production of any field depend on three main factors, namely, the inherent properties of the particular variety, the conditions under which the cane is growing, the state of maturity or ripeness the cane has reached. The object of both field and factory should be to reap the cane when the maximum amount of sugar or sucrose per acre is obtainable. In general the sucrose content of the juice of a growing cane increases to a maximum, when the cane is considered to have reached a state of maturity, followed by a decrease on further growth. If the cane is allowed to remain in the field, the tonnage of the cane may increase, but the increase is usually more than offset by the decrease in sucrose content. In some cases, particularly if the cane has arrowed, the tonnage also may decrease.

All planters are aware that different varieties of cane take different periods to reach maturity. A cane of the P.O.J. 2878 type may reach maturity under favourable conditions in twelve months, while BH. 10/12 under similar conditions may require fifteen months or more.

If a field contain more than one variety, it is therefore practically impossible to select a time for reaping, when all the canes of all varieties are ripe. If one variety is ripe, other varieties are under ripe or over ripe. Loss of sucrose and the decrease in the yield of sugar per acre must result.

An opportunity arose during the past crop to examine samples of cane from a field containing nine different varieties of cane. The field had poor germination, and suffered successively from hurricanes and floods which necessitated a very high percentage of supplies when tops were difficult to obtain.

Tests of different canes were made with a Zeiss Hand Refractometer in the field. With the exception of the main varieties, only one or two canes of each variety were tested. The canes tested were carefully selected as being representative of its particular variety, so that the results may be assumed to be fairly reliable. Comparative tonnage tests were not possible. The results obtained were as follows:—

Variety.		°Brix of Juice.
Average value of main variety	..	19.48
BH 10/12 with some Ba 6032	..	(Min. value 18.6)
(Avg. of 21 canes) ..	..	(Max. " 22.8)
Other Varieties (Small samples)—		
C 35 ..	..	15.9
Ba 11569 ..	..	16.3
SC 12/4 ..	..	22.4
SC 12/4 ..	..	22.2
SC12/4 ..	..	20.8
Ribbon ..	..	17.3
Jamaica Cane ..	..	15.3
P.O.J. 2725 ..	..	13.6
P.O.J. 2714 ..	..	18.1

It will be noticed that except for the juice from the SC 12/4 canes, the juices are very poor quality, so poor that in normal circumstances the canes would not be cut until some improvement were obtained. Some of the varieties involved have reputations for producing good juices, so that the difference cannot be due entirely to the characteristics of the different varieties. They must be due, mainly, therefore to the different lengths of time required for the different canes to reach maturity. The losses in sugar and money involved in grinding cane with a juice Brix value of 13.6° when juice of 19.48° Brix might have been obtained, are obvious.

The results emphasise the necessity of growing only one variety in a field as far as possible. Practical difficulties of obtaining this end can be overcome to some extent by the provision of adequate estate nurseries from which tops for supplies can be drawn.

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A TRADE REVIEW.

By DONALD MACDONALD, Accountant, Jamaica Agricultural Society.

In view of the interest aroused among our local readers through a recent statistical article published in the Journal of December, 1933, to indicate what become of the products that we export and the extent of our trade relations with other countries, another short review covering the year ended 31st December, 1933, is now published for general information.

As Exports affect the Agriculturist more vitally than Imports, we will deal with that which represents the fruits of our collective efforts in the production of Exportable Commodities over the period.

Undoubtedly the state of our Export Trade for 1933, is a matter of grave concern, as apart from the disasters we have experienced with our Bananas which constituted our greatest set-back, the value of certain of our Exports are shrinking each year.

Glancing back to the Statistics for 1923, we find that the total value of our Domestic Exports amounted to £4,220,629 for that year, while during the past five years we have made the following showing:—

1929 Total Domestic Exports		..	£4,605,307
1930 "	"	..	£4,039,075
1931 "	"	..	£3,286,128
1932 "	"	..	£3,137,111
1933 "	"	..	£2,396,569

Taking the year 1929 for comparison, which we may class as one in which we enjoyed the full degree of prosperity that our efforts merited, and average weather conditions allowed, the following particulars will show the direction in which our trade has been diminishing.

Articles.		Exports, 1929.		Exports, 1933.	
		Quantity.	Value.	Quantity.	Value.
		£	£	£	£
Bananas ..	stems	22,047,536	2,509,878	10,557,369	1,018,476
Pimento ..	lbs.	9,039,147	348,166	9,101,329	69,811
Cocoa ..	"	6,723,132	116,021	3,744,246	32,435
Coconuts ..	No.	39,918,498	191,971	37,437,559	117,578
Copra ..	lbs.	7,888,809	65,433	5,125,934	21,959
Ginger ..	"	2,128,576	59,744	1,665,926	31,046
Honey ..	"	1,850,320	21,342	1,519,361	11,643
Rum ..	gals.	810,908	80,650	385,872	48,273
Cigars ..	lbs.	65,268	46,598	39,862	23,145
Logwood ..	tons	21,010	72,907	25,104	68,674
Logwood Extracts ..	cwts.	23,514	86,253	30,045	101,528
Sugar ..	tons	37,380	482,952	45,270	424,295
Coffee ..	lbs.	6,571,902	264,566	9,824,230	218,313
Grapefruit ..	No.	10,213,560	61,751	11,856,259	60,645
Oranges ..	boxes	10,466	4,587	92,501	42,825
Essential Oils ..	gals.	16,358	59,325	8,897	16,708
Goatskins ..	No.	172,122	13,662	191,094	14,030
Hides of Cattle ..	No.	13,635	12,953	16,305	7,124

It will be clear at a glance that our misfortunes centre around the large drop in the Export of Bananas and the disquieting fact is also revealed that our Exports declined by nearly three-quarters of a million sterling from the previous year, and over two millions sterling less, than five years ago. This should not however be taken as an alarmist statement but is meant to strengthen the case of those who have constantly urged Jamaica not to put all her eggs in one basket. Our dependence on the Banana must receive a jolt when it is realized that this product has been mainly responsible for this big decline in the year's exports.

Banana Exports during 1933 declined by nearly 50% of the 1932 total. The number of stems exported was 10,557,369 as against 20,360,613 in the previous year. We were however fortunate in realizing somewhat higher prices so that although quantities decreased by nearly half, values kept up better, realizing £1,018,476 as against £1,869,111 the year before.

The bulk of the exports went to the European markets, and as the consignments were all made to the United Kingdom no figures are available to show the quantity absorbed by continental markets.

Bearing this in mind our exports to the United Kingdom were 8,387,582 stems, with Canada next, who took 1,832,295 and the U.S.A. 337,319. Two years previously the U.S.A. had taken 9,995,289 stems showing that our market to that country is on the verge of extinction except conditions in that country show some change. Slowly we are learning our lesson that the prosperity of each nation hangs closely on the degree of prosperity enjoyed by the others.

Sugar exports show an encouraging increase of 6,782 tons more than the previous year. There was a remarkable swing round of trade with the United Kingdom for whereas during 1932 Canada took 29,408 tons and the United Kingdom 8,966 tons out of our total of 38,488 tons, which emphasises the potency of tariff regulations, the figures for 1933 show that the United Kingdom took 28,013 tons compared with Canada's 17,142 tons out of a total of 45,270 tons. Coffee also showed an increase in quantities exported, but the price of this commodity declined, so that the total of 9,824,230 lbs. was valued at £218,313 as against 8,877,455 lbs. valued at £224,057 the year before. Canada was our best customer to whom we exported 9,466,023 lbs. with only 263,579 going to the United Kingdom, 17,404 lbs. to the U.S.A., Belgium 30,226, and small quantities distributed among seven other countries.

With coconuts there was a drop in quantity and value, from 39,238,811 nuts valued at £131,526 in 1932 to 37,437,559 nuts valued £117,578 in 1933.

The U.S.A. absorbed 28,641,111 nuts, Canada, 6,693,099; United Kingdom, 1,651,150 and Holland, 338,796.

Very welcome increases in values are also disclosed as follows: Rum Exports increased from £21,519 in 1932 to £48,273; Logwood increased from £55,230 to £68,674; Logwood Extracts from £57,938 to £101,528—a most helpful increase; Essential Oils from £12,957 to £16,708, and Hides of Cattle from £4,166 to £7,124.

Next to Bananas our Cocoa Exports showed the largest decline dropping from £48,102 in 1932 to £32,435; Goatskins decreased from £33,708 to £21,959; Cigars from £29,421 to £23,145; Ginger from £35,678 to £31,046; Honey from £13,803 to £11,643, and Copra from £23,708 to £21,959.

From the foregoing, the conclusion may be formed that the present hard times has mainly come about through the tumble of our main "Egg basket," and that we may, consider ourselves fortunate in

escaping the full blast of this unprecedented Trade Depression which wiped out over 60% of the Export Trade of the great United States of America in 1930, and has reduced the country to desperate measures.

Furthermore we are assured that to a great extent, our activities are engaged in producing commodities for which there is a uniform Empire demand, and if we will but follow the example set by other countries in increasing production and quality so as to compensate for lower prices our problems may soon be considerably minimized.

A statement follows showing the values of Export and Import Trade with the many countries with whom we interchange products:—

Countries of Origin.	Imports therefrom.	Exports thereto.
	£	£
United Kingdom	1,697,475	1,341,803,
Antigua	..	28
Australia	1,108	1,808
Bahamas	24,926	5,275
Barbados	44	397
Bermuda	127	7,523
British East Africa	2	..
British Borneo	398	..
British Guiana	69,015	359
British Honduras	43	481
British South Africa	424	102
British Malaya	3,192	..
British West Africa	237	..
British West Indies (lesser)	197	..
Canada	675,297	660,936
Cayman Islands	4,621	1,575
Cyprus	35	..
Ceylon	7,997	..
Grenada	638	79
Gibraltar	64	16
Hong Kong	7,566	278
India	85,874	248
Irish Free State	2,498	83
Iraq	204	..
Kenya	401	..
Malta	33	46
Montserrat	..	19
Newfoundland	98,299	314
New Zealand	30,677	2,442
Nyasaland	15	..
Palestine	113	499
Pedro Keys	11	..
Saint Lucia	90	..
Saint Vincent	158	..
Straits Settlement	1,289	..
Trinidad	239,170	931
Turks Island	2,797	266
Zanzibar	13	..
Total Empire	£2,954,978	£2,025,508
United States of America	687,937	224,480
Arabia	23	..
Argentine	5,826	..
Austria	1,220	1,075
Belgian Congo	91	..
Belgium	21,874	8,062
Brazil	648	..
Chile	7,972	..
China	14,923	1,790
Colombia	7	39
Costa Rica	34	674
Cuba	10,835	161

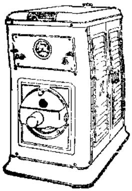
Countries of Origin.	Imports therefrom.	Exports thereto.
	£	£
Czecho-Slovakia	20,942	..
Denmark	22,308	2,543
Dutch East Indies ..	371	..
Dutch West Indies	21,601	46
Egypt	1,130	191
Ecuador	1	..
Esthonia	109	..
Finland	146	632
France	27,006	58,856
Germany	80,281	30,547
Greece	2,799	113
Guatemala	..	175
Hawaiian Islands	1	..
Hayti	1,309	171
Holland	40,556	2,959
Hungary	199	..
Italy	15,166	8,435
Japan	200,444	82
Jugo Slavia	246	..
Latvia	49	..
Lithuania	6	..
Madagascar	24	..
Madeira .. .	86	..
Manchuria	1	204
Mexico	28	28
Morocco	149	17
Nicaragua	..	32
Norway	3,217	176
Panama	1,146	10,951
Persia	105	..
Phillipine Islands	2	..
Poland	651	962
Porto Rico	556	..
Portugal	951	8
Roumania	7	432
Russia	1,031	..
Santo Domingo	202	128
Savannah Banks	468	..
Siam	25,417	..
Sicily	85	..
Spain	4,828	454
Spanish Honduras ..	30	225
Sweden	27,760	675
Switzerland	10,071	502
Syria	280	440
Turkey	103	31
Uraguay	351	..
Venezuela	22	..
Virgin Islands	146	..
Parcels Post (all countries) ..	149,088	14,793
Grand Total ..	£4,367,843	£2,396,569

HINTS TO CORRESPONDENTS.

The habit of correspondents who include many subjects in one letter to the Secretary, considerably delays prompt attention to all the requirements of such a letter, as it has to be circulated from one Department to the other for attention.

Prompt service would be greatly facilitated when seeds are being ordered not to include other items of correspondence that require reply on the order.

The Editor.



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PIGS AND MOSQUITOES.

(*Extract from Tropical Life, Aug.-Sept.,* 1934.)

From our good friend *The West Coast Leader* of Lima, Peru, of March 20th, we have "lifted" the following, believing the experiences it describes will be of use to many of our readers. If the little fish known as Millions eat the mosquito larvæ, pigs evidently attack the adults. What does not seem clear concerns the fate of the mosquitoes after feeding on the pigs; do they gorge themselves to such an extent that they die? Here is the story.

* * * *

Amid the Etruscan ruins of Ardea lies a little Italian village with a population of 513. Mosquitoes of the malaria-bearing Anopheles variety swarmed there. Despite all preventive measures, the cases of malaria rose from 23.6 per cent. in 1929 to 46.9 in 1930, and fell to 32.6 in 1931. When the public health authorities inspected the village in 1931, they gave orders to install twenty hog pens. Before that there had been only two, besides three stables for cattle. The effect was almost miraculous. Dr. Escalar, who saved the village from much scratching and illness, states that the number of Anopheles mosquitoes in houses dropped 60 per cent. in 1932. He caught 139 Anopheles gorged with blood, but the blood of 97 was hog blood. Not one of the rest contained human blood. Between May and December, 1931, there were 87 cases of malaria in Ardea, but in the same period of 1932 only 38. The cases of malaria dropped from 46.7 per cent. in 1930 to 32.6 in 1931 and to 8.94 in 1932 after the hog pens were installed.

* * * *

In 1931 Dr. Escalar caught 831 mosquitoes in homes and only 38 in 1932. But the number trapped in the hog pens rose from 5,036 in 1932 to 7,383 to the end of July, 1933. Dr. Falleroni repeated Escalar's experiments, and not only confirmed them but found that swine were by far the best mosquito decoys. Another Italian investigator, Dr. Fermi, made some measurements which convinced him that swine are seven times as effective as horses and four times as effective as cattle in attracting mosquitoes. To complete the picture of sanitary perfection he assures the tender-hearted that swine are more immune to mosquito pricks than other domestic animals. Now all the villages in the region of Ardea are keeping swine. It means good health and good money for hams nad bacon.

* * * *

Farmers, meanwhile, in America, so we are told, believe that their terrible drought is due to Divine punishment for the restriction of crops and pigs, by not planting the first and killing the second.

* * * *

If Manchukuo embraces the Soya Bean area of Manchuria of old, the new State cannot boast of the prosperity it has brought to the planters. According to a correspondent in the London Chamber of Commerce *Journal* for July, "there are mountains of beans that the world does not seem to want, and Manchukuo, instead of paying its way, is waiting for that rise in prices upon which, the economists tell us, salvation depends."

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122 TOWER STREET, - KINGSTON.

THE NECESSITY FOR HILLSIDE TRENCHING.

By Asst. Instructor, C. D. V. Henderson.

In an Island like Jamaica where so great a portion of the arable land is situated on the hillsides and where so much depends on agriculture, experience should have taught all planters the necessity for hillside trenching and the great benefits to be derived from exercising proper care in this direction.

Unfortunately one does not have to go far to find how little attention is given to this most necessary branch of cultivation; this lack of care is particularly noticeable on the part of the small farmer.

The effects of drainage upon cultivated lands are many and varied and in each case forms the basis of good cultivation.

Firstly, drained lands are warmer and therefore earlier.

Secondly, by trenching the level of the permanent water table is reduced and a greater depth of soil above the water table becomes aerated and so available to the plant roots.

Thirdly,—Trenching improves soil texture. Added to these the trenching of hillsides is an important factor in conserving its fertility.

After each heavy shower of rain, partially cultivated and untrenched hillsides are poorer than they were before, for the simple reason that water, rushing down the slopes, scours the hillsides, leaving them denuded of their fine surface soil, with its store of humus.

We seldom stop to think when we see the rivers in spate, heavy with mud, what a deal of valuable plant food is being carried away to the sea. Trenching cannot wholly prevent this, but a great deal can be saved by a good system of retaining trenches on hillsides.

Trenches two feet wide at the top, by two feet deep with a width of eighteen inches at the bottom (so as to permit of sloping sides, thereby reducing, if not wholly preventing, the falling in of the sides) would prevent the wash and materially assist in the preservation of soil fertility. The planting of leguminous cover crops is particularly useful in preventing erosion on hillsides, as well as adding to the soil nitrogen and organic matter.

The reason no doubt for the lack of hillside trenching is that the harm is not immediately noticeable and therefore the cultivator does not readily realise the loss which he is sustaining, until after it occurs.

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GROWING SOYA BEANS IN BRITISH GUIANA.

(Extract from the Daily Chronicle, Georgetown, British Guiana, 13.8.34.)

A Gamble with the Weather.

Experiments by Agricultural Department.

Georgetown, Wed., Aug. 1.

Extensive cultivation of Soya Beans is a gamble with the weather, experiments have definitely proved.

Beans grown in this country compare very favourably with those grown in other parts of the world. The Imperial Institute which examined a sample of beans sent by the Director of Agriculture in 1928, reported that the beans were of normal composition and contained the usual high percentage of crude proteins. The percentage of oil (18.6) was satisfactory, the usual oil content of soya beans ranging between 16 and 19 per cent.

Experiments.

Following the publication of this report, high hopes were entertained of large scale cultivation of soya beans. Experiments carried out by the Department of Agriculture at Cecilia and in the North West District have shown that if favourable weather conditions obtain a good crop of 1,500 lb. to 2,000 lb. per acre could be reaped, but bad crops were more in evidence than good crops. If rain came at the critical moment, the crop would be practically destroyed and rendered useless, and it is for this reason that, in the opinion of the Department of Agriculture, the risk is too great for the farmer to undertake with any measure of confidence that he will obtain a good crop.

An Improvement.

The whole question therefore depends entirely on climatic conditions between flowering and harvesting periods. While the Department do not recommend large scale cultivation in view of the very heavy damage done by the rain, they are, however, continuing with their experiment, because there is no reason why soya bean should not become accustomed to the environmental conditions to which it is subjected. A limited quantity of seed is available at the present time from plots recently harvested, and it is particularly pleasing to note that the pea in the pod is larger than formerly. Farmers are advised by the Department to proceed cautiously before putting in large acreage of this very fastidious crop.

Those farmers who are willing to make a trial can obtain seeds for planting.

The price of soya bean oil is $23 per ton.

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White Grapes plants for April deliveries 1/- each
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THE ROOT SYSTEM OF COFFEA ARABICA.*

By F. J. Nutman.
(East African Agricultural Research Station, Amani, Tanganyika).

Arabica coffee is grown over a wide range of soils and conditions in East Africa. The soils vary from the deep almost unweathered volcanic ashes of Mount Meru to heavy clays. The acidity profiles vary also; some are neutral or slightly alkaline at all depths, some comprise a surface layer near neutrality, overlying a more acid subsoil, while others are acid throughout. Rainfall may vary from 80 to 100 inches in one area to 20 to 25 inches in another.

The root system of coffee varies very considerably from area to area, as might, indeed, be expected, but from a consideration of the 67 systems so far excavated, it is possible to define what may be called the typical root system of *C. arabica*. This is characterised by the absence of a tap-root, by the development of a number of vertical axial roots, and by the laterals turning downwards at varying distances from the trunk, giving rise to a system of roots which are evenly dispersed throughout the soil to a depth of nine feet or so, although in some districts they may be found at 14 feet from the surface.

This system may be modified by local soil conditions, such as rock and gravel strata, dry hardpan, high water-table and so on, whereby penetration of the roots may be more or less restricted.

The effects of soil acidity on the roots, as brought out by field studies, is perhaps worthy of special mention. Coffee has previously been assumed to be an example of a plant which requires an acid soil for its optimum development. Comparison of the distribution of the roots with the acidity profile of the soil shews that this is not the case. Soils which are acid throughout shew very poor root development at all depths: where an acid subsoil underlies a top-soil which is neutral or moderately acid the feeder roots are virtually confined to the surface soil: but where the soil is neutral or nearly so throughout, the roots are found to be evenly dispersed. From field evidence only, and pending confirmation by experiment, the optimum acidity for coffee root growth is on the neutral side of pH 5.8.

One of the more serious problems in East African coffee culture is that of "overbearing and dieback." The young tree sets a heavy crop, only part of which matures. This is followed by leaf fall, the drying up of the crop, and the dying back of the branches. The tree rarely recovers completely, and at the best is a "passenger" for some years. The dieback of the branches is paralleled by dieback of the roots, the regeneration of which appears to take place with difficulty if at all. The roots in the surface soil seem more resistant to this subterranean dieback than the more deeply seated ones, or possibly they regenerate more readily. At any rate a tree which has had dieback is frequently found to be reduced to surface rooting, in areas where the natural habit may be the reverse.

In some areas, where the roots are confined to the top-soil by an acid sub-soil, excellent coffee trees can be grown by the use of considerable quantities of organic manure. It therefore appears possible that the correct treatment for trees subsequent to dieback is to increase the fertility of the top-soil, in order to provide a sufficiency of nutrients within the suddenly restricted range of the root system.

* A summary of "The Root System of *Coffea arabica*," Parts I and II. *Empire Jur. of Expt. Agric.*, Vol. I, 3 and 4, 1933.

TUNG OIL.

Some tung oil trees are being grown in various parts of the island. The following information should encourage those interested in care of their trees so that a fair trial may be had as to the possibility of the successful production of the seed here.

Tung Oil is the quickest oxidising oil known to science and cannot be produced synthetically. It has many uses, including the manufacture of paints, varnishes, lacquers, wall papers, oil cloth, linoleums, motor car parts, leathers, fabrics, inks, electrical parts, cartridges, shells, etc.

Over 2,000 manufacturers consume over 170,000,000 lbs. annually, and there is an ever growing market for this product.

It is estimated by experts that there is a potential market of £28,000,000 per annum for tung oil.

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R. EDEN BODDEN, Manager.

THE PANAMA DISEASE OF BANANAS AMENDMENT ORDER 1934.

Under Section 2 of the Protection from Disease (Plants) Law 1925, Law 10 of 1925).

Whereas it is provided by Section 2 (4) of the Protection from Disease (Plants) Law 1925, (Law 10 of 1925) (hereinafter called "the said Law") that the Governor may at any time revoke or vary any Order or Rule or any part of any Order or Rule issued or made under the said Law,

And whereas the Panama Disease of Bananas Amendment Order 1931, was made by the Governor on the 28th day of May, 1931 in exercise of the power conferred by Section 2 of the said Law and published in the Jamaica Gazette on the 4th day of June, 1931:

And whereas it is deemed expedient to vary the said Panama Disease of Bananas Amendment Order 1931;

Now therefore I, Sir Arthur Selborne Jelf, Knight Bachelor, Companion of the Most Distinguished Order of Saint Michael and Saint George, the Officer Administering the Government of the Island of Jamaica and its Dependencies in pursuance and exercise of the powers conferred by Section 2 (4) of the said Law and of all other powers in that behalf hereunto enabling do hereby order and declare and it is hereby ordered and declared as follows:—

1. The said Panama Disease of Bananas Amendment Order 1931 shall be and the same is hereby varied by rescinding paragraph 9 thereof and substituting therefor the following paragraph:—

9. "Notwithstanding anything herein ordered the "Director of Agriculture may "at any time and in any particular case or in regard to any specified holding, district "or parish, by means of a notice published in the Jamaica Gazette or by written "instructions to any person appointed under Section 5 of the Protection from Disease "(Plants) Law 1925 or to the occupier or other person having the charge or manage-"ment of land which in the opinion of the Director of Agriculture is infected with "the Panama Disease of Bananas prescribe and authorise a modification of the "measures to be taken for the treatment of the Panama Disease of Bananas or a "reduction in the area to be treated as an infected area or a modification of the "method of treating infected areas."

2. This Order may be cited as: "The Panama Disease of Bananas Amendment Order, 1934."

Made at King's House, Jamaica, in the Parish of St. Andrew, this 31st day of July, 1934.

(Sgd.) A. S. Jelf,
Officer Administering the Government.

NOTICE UNDER THE PANAMA DISEASE OF BANANAS AMENDMENT ORDER, 1934.

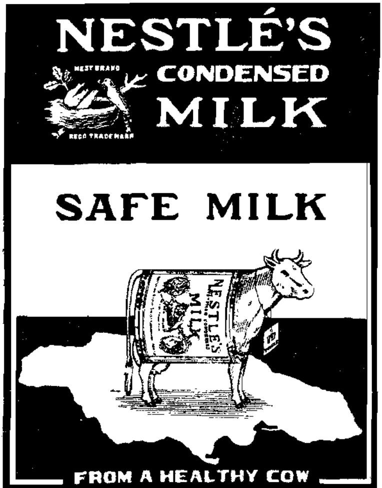
By virtue of the authority conveyed by Section 9 of the Panama Disease of Bananas Amendment Order, 1931, as varied by the Panama Disease of Bananas Amendment Order, 1934, I hereby give notice that I prescribe and authorise for use in the parish of Saint Mary, the following modifications of the measures prescribed by the Panama Disease of Bananas Amendment Order, 1931 for the treatment of the Panama Disease of Bananas and of infected areas:—

1. Every owner or occupier or person having the charge or management of land who knows or suspects the existence of Panama Disease of Bananas on the land of which he is the owner or occupier or has the charge or management shall carry out the following treatment:
   (i) He shall forthwith cut down each diseased or suspected banana plant not more than four inches above the soil and shall apply to the cut surfaces and to the soil immediately surrounding all parts of each such banana plant a Petroleum Oil of a brand approved by the Director of Agriculture and published as such in the Jamaica Gazette and in sufficient quantity to kill the plants.
   (ii) The material cut down shall be cut up into slices not exceeding three inches in thickness placed on and around the base of the diseased or suspected plant within a radius not exceeding six feet from the said plant and thoroughly sprinkled with an approved oil applied at the rate of from two to six pints per plant according to the size thereof.
   (iii) The material treated as in (ii) above shall be so placed and kept as to be not easily carried away by flood rains.
2. An area of not less than six feet radius from each plant treated as in Clause 1 hereof shall be an infected area and shall be subject to the treatment prescribed.

for and restrictions imposed on infected areas by Sub-clauses (2), (3) and (4) of Clause 3 and Clauses 5 and 6 of the Panama Disease of Bananas Amendment Order, 1931.

3 Notwithstanding anything in the foregoing any person in the parish of Saint Mary who so desires may continue to treat the Panama Disease of Bananas in accordance with the measures prescribed by the Panama Disease of Bananas Amendment Order, 1931.

(Sgd.) A. C. BARNES,
Director of Agriculture,
9th August, 1934.



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Real Good Stuff.

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WINE AND SPIRIT MERCHANT,
40/42 Orange Street, 31 Olivier Place.

MARKETING NOTES.

(*Extract from Weekly Dairy Produce Notes, 20th July*, 1934.)

PIGS MARKETING SCHEME (NORTHERN IRELAND).

Dead Pig Prices.—The Pigs Marketing Board (N.I.), in accordance with the pork price formula agreement with the Bacon Marketing Board, has fixed the following prices for dead pigs sold by pig producers on and from 1st July, 1934, to curers registered under the Bacon Marketing Scheme (Northern Ireland), 1933, to apply until further notice:—

Description of Pig Carcases.	*Dead Carcase Weights.*							*Price per Dead Cwt.*
	Cwt.	Qr.	Lb.		Cwt.	Qr.	Lb.	
Medium ..	1	1	14	to	1	3	14	55/-
Heavy ..	1	3	15	to	2	0	0	52/-
Extra Heavy ..	2	0	1	to	2	0	14	46/-

A deduction of 5s. per dead cwt. from the above prices may be made for partly black carcases.

Live Pig Prices.—The Pigs Marketing Board announces that it is prepared to buy live pigs at the following prices until further notice:—

Live Weights.							*Pigs suitable for Shipping.*	*Pigs unsuitable for Shipping.*
Cwt.	Qr.	Lb.		Cwt.	Qr.	Lb.	Per live cwt.	Per live cwt.
1	3	0	to	2	1	14	44/-	40/6
2	1	15	to	2	2	7	42/-	38/-
2	2	8	to	2	2	21	35/6	31/-

The above prices are subject to a deduction of 2s. per pig levy and 3s. per pig marketing expenses.

(*Extract from "Fruit Supplies in* 1933;" *June* 1934)

TABLE III.—*Imports of Bananas into the United States and into the United Kingdom.*

Period.	United States.	United Kingdom.
Five year Average.	Bunches.	Bunches.
1909-13	43,700,000	6,700,000
1922-26	51,100,000	11,900,000
Year.		
1927	61,000,000	12,700,000
1928	64,300,000	10,700,000
1929	65,100,000	14,900,000
1930	62,700,000	15,000,000
1931	55,900,000	16,200,000
1932	49,500,000	17,100,000
1933	39,600,000	15,900,000

LOCAL PRODUCE PRICES.

Annatto—Well cured Red Seed		20/- delivered Kingston
Cocoa—Ordinary	..	18/- " "
Fair Fermented	..	18/- " "
Estates Fermented	..	19/- " "
Coffee—Nominal—		
Good Ordinary	..	38/- " "
Fine Ordinary	..	40/- .. "
Manchester-B	..	40/- " "
Manchester-A	..	42/ " "
Honey—White	..	2/3 per gln. delvd. Kingston
Pale ..	..	1/9 " "
Light ..	..	1/6 " "
Dark ..	..	1/3 " "
Kolanuts—Sound quality, well cured		6/- delivered Outport 7/-delivered Kingston
Orange Oil—Sweet, sound quality		2/9 per lb. delivered Kingston
Pimento—Market uncertain and irregular.		
Sarsaparilla—Well cured, Red Roots		40/- per 100 lb., nett weights, delivered Kingston
Wax—Pure and clear	..	7d. per lb., nett weights, delivered Kingston.

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SOCIETY FOR THE PROTECTION OF CRUELTY TO ANIMALS.

BE KIND.

STOCK NOTES.

(*Jamaica Gazette, August* 16, 1934.).

Return showing the approximate number of Cattle slaughtered in the several parishes during the month of July, 1934.

Parish.	No. of Cattle slaughtered.
Kingston	880
St. Andrew	45
St. Thomas	63
Portland	129
St. Mary	123
St. Ann	208
Trelawny	74
St. James	159
Hanover	87
Westmoreland	148
St. Elizabeth	170
Manchester	237
Clarendon	113
St. Catherine	208
Total	2,644

POULTRY NOTES.

Bronchitis.

One of the serious and annoying troubles among poultry is bronchitis. The symptoms are familar to all poultry keepers. Certain types of bronchitis are infectious. It is to these types that these notes will more particularly refer.

The symptoms of the disease are noticeable in from three to ten days after the virus has been breathed in by the bird. The virus lodges in the mucus membrane which lines the larynx and the windpipe and gradually creates an inflammatory condition which causes mucus and in later stages bloody discharges. These discharges accumulate making breathing difficult. A rattling in the windpipe takes place and the bird gasps for breath and a characteristic wheezing sound is noticed.

It is good news to poultry men to record the fact that quite positive vaccines are now obtainable as a preventive to the disease and wherever a poultry keeper is much troubled with it, it would be wise to use the vaccine on pullets being put up for the laying season. Treatment of sick birds should commence by giving a laxative consisting of equal parts of Epsom salts and baking soda. One pound of this mixture in six quarts of drinking water for 100 hens is about the right dose and the birds could then be sprayed with some preparation such as Healing Oil or Cam-Pho-Sal or even Vicks.

Users of this vaccine should be warned that it contains live virus, and so anyone using it should be careful that none of the vaccine gets away into the atmosphere. Vaccination is usually done in the case of bronchitis by dipping a small brush into the vaccine and applying a small amount lightly to the mucus membrane in the upper portion of the vent. Reaction should take place in three days. Reaction can be identified at the point of vaccination by a slight inflammatory condition and a cheesy discharge.

We are planning to stock various types of preventive vaccines for poultry for the benefit of the industry.

Caponizing.

Caponizing is the operation for unsexing cockerels. Much more of this could be done in Jamaica with profit. It is a comparatively simple operation and there are many advantages to it. It is easier keeping capons than it is keeping cockerels. They can be kept along with the pullet flock without harm. Capons will grow over a longer period adding weight as they go than they would as cockerels and their flesh brings higher prices.

The best breeds to use for the purpose are Rhode Island Reds, Plymouth Rocks, in fact any of the heavier breeds make admirable capons. They are very docile, fatten easily and commonly weigh between 10 and 12 pounds, and even if prices to hotels work out at one shilling per pound your well grown capons will bring you ten shillings each. They need not be fed expensive rations. Ordinary good grain, cut up coconuts, a little skimmed milk, or if skimmed milk is not obtainable, a mixture of bone meal and meat meal in small quantities will maintain growth and health.

We reproduce below some very clear directions as to how to caponize which is taken from one of Dr. Slasbury's publications.

The strong, vigorous cockerels should be selected, the operation being performed before there is very much sign of comb development.

Birds weighing from 1¾ to 2 lbs. are the proper size. They attain this weight in 8 to 10 weeks.

Preparation.

Birds to be operated on should weigh approximately 1¾ to 2 pounds. They should be kept from feed and water for at least 36 to 48 hours (48 hours is better). They should be confined in houses or coops with bare floors. If held in an open lot, they will pick up too much material from the ground.

A bright sunny day should be selected. Sunlight is essential for a good view into the abdominal cavity. A good headlight, such as is used by medical doctors for examination of the throat, is also beneficial. For the operating table a barrel or a small table is suitable. A barrel is about the right height and size, and is easy to work around in performing the operation.

Confining the Bird.

A cord is fastened around both legs of the bird above the hocks. A weight (about the size of a half brick) is attached to the opposite end and hung over the side of the barrel. Another cord is passed around the wings, holding both of them together above the back, a similar weight is attached to the opposite end and hung over the edge of the barrel on the opposite side. This will hold the bird securely, prevent, struggling and will stretch the limbs to allow easy access to the ribs.

Place the bird on its right side and remove the left testicle first. The operator should stand at the rear and lower side of the bird, facing forward and upward toward the abdominal cavity. Pluck a few feathers in the space between the hip-bone and the last two ribs. The feathers may be slightly dampened.

The Operation.

Place the tip of the index finger on point of hip-bone, pass forward into the space between the hip-bone and the last rib, find the last rib and locate the space between the two last ribs. This space is very narrow and must be definitely located. While holding the finger in this position follow down the fingernail with the point of the knife, beginning at the upper portion of the space next to the backbone, make the incision deep between the last two ribs, about a half inch or more in length. (Note the incision in the cut.)

You are now ready to insert the spreader. Pick up the spreader by the handles, hold the jaws close together, insert spreader into opening and spread slightly. If the opening is not sufficiently large to operate through, cut upward toward the backbone. In making the incision be careful not to cut too low down as the attachment of the last rib on the lower side may be cut. This will not injure the bird, but upon inserting the spreader, the incision spreads at the bottom instead of higher up, which makes it more difficult to proceed in removing the testicle from the abdominal cavity.

The opening having been spread sufficiently, you now note a thin membrane. By means of the hook on the opposite end of the remover, pick up the membrane beginning high up, close to the backbone with a downward stroke, tear this membrane. If the bird has been properly fasted the intestines will be toward the lower part of the abdominal cavity out of the way and the testicle in plain sight attached to the backbone near the middle of the back close to the attachment of the last two ribs. In the heavy breed birds it will be of a slight yellow color, slightly larger than a grain of wheat.

Pass the testicle remover into the abdominal cavity. If the bird is confined on right side, insert remover at rear end of testicle working

under and forward; if bird is confined on left side, insert remover at front of testicle working under and backward, permitting the cord and sheath below the testicle to pass backward into the slot in the center of the remover. Give the remover a full turn, twisting the cord, after which the testicle may be lifted out. If the cord does not break readily upon lifting almost to the opening in the abdominal wall, insert point of the knife just under the remover and sever the cord and membrane. Remove the testicle on the opposite side in the same manner. In picking up the testicle the remover may be inserted from either end, whichever is handiest for the operator.

Be sure that every particle of the testicle is removed. Otherwise, the birds are not completely unsexed and are known as "slips." Be careful in picking up the testicle that the large vein, called the posterior vena cava, is not injured. Such injury will result in excessive bleeding and will cause instant death.

Be careful not to allow feathers or foreign material to enter the abdominal cavity.

In releasing the bird, hold it upright and permit the feet to come down in the normal position. Be careful that a loop of intestine does not protrude from the incision. When the feet gain their normal position the muscular wall is drawn over the opening and prevents the intestine from protruding after the bird is turned loose.

Losses from operation when this improved set is used should be very low, providing the bird has been properly fasted and care is practised by the operator.

Care After Operation.

After the operation confine the birds for a few days in small inclosures with very low roosts. Keep them clean and dry and feed them carefully on a nutritious but not bulky diet.

Ballooning or Puffing the Skin.

The puffing or ballooning of the skin of the abdominal wall around the incision may take place a few days after the operation. This is caused by the rupture of the air sac in the abdominal cavity. The air coming through the inside flesh opening after the skin has healed on the outside, causes a collection of air between the skin and the muscular wall.

This may be relieved by cutting an opening one-half inch wide to let the air out. Better still, grasp the skin about the center of the enlargement with a small pair of forceps and raising slightly, with a small pair of scissors, work under the point of the forceps and cut out a small piece of skin. In this manner an elliptical opening is left in the skin which gives immediate relief to the puffing and such opening will not close up before the incision of the operation is healed. A darning needle is too small to do much good.

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TABLE FOR GARDEN VEGETABLES, TIME FOR SOWING SEEDS, &c.

Kind of Vegetables.	Time for Sowing. Highland.	Time for Sowing Lowlands.	Time for Sowing Midlands.	Days to Germinate.	Days to be ready for use.	Distance. rows.	Distance. apart.
Beans, French (Red Peas)	Every 2 weeks	Nov. to Feb.	Aug. to March	3 to 8	35 to 40	4 inches	18 inches
Beans Dwarf Lima	Feb to April	do do	do do	6 to 8	65 to 90	4 inches	2 ft.
Beans, Pole Lima	Feb. to April	Aug. to March	do do	6 to 8	65 to 100	2 ft. 6 in.	4ft.
Beans, Old Homestead	Feb. to April	Aug. to March	Aug. to March	6 to 8	40 to 60	2 feet	4 ft.
Beets	Every 4 weeks	Oct. to March	Oct. to March	7 to 9	60 to 90	4 inches	15 inches
Brussels Sprouts	Every month	Sept. to Jan.	Aug. to March	4 to 10	100 to 150	2 feet	2 feet
Cabbage	Every month	Sept. to Jan.	Aug. to March	4 to 10	100 to 150	3 feet	3 feet
Carrot, Half Long	Every month	Oct. to Feb.	Oct to March	10 to 15	65 to 90	4 inches	1½ feet
Carrot, Long Orange	Every month	do do	do do	10 to 15	90 to 120	5 inches	2 feet
Cauliflower	Every month	Sept. to Jan.	Aug. to March	4 to 10	100 to 150	2 feet	2 feet
Celery	Feb. and March	Oct. to Feb.	Oct. to March	12 to 20	135 to 160	6 inches	3 feet 6 ins.
Corn	Jan. to Mar. Aug. to Sept.	Aug. to Sept.	Mar. to April Aug. to Sept.	3 to 8	50 to 100	3 feet	4 feet 2½ feet
Cucumber	Every month	Oct. to Feb.	Oct. to March	6 to 8	60 to 80	4 feet	4 feet
Egg Plant	Feb. and March	do do	do do	10 to 14	130 to 160	2½ feet	2 feet
Kohl Rabi	Every month	do do	do do	6 to 8	65 to 85	9 inches	½ foot
Leek	Jan. to Feb	do do	do do	6 to 10	120 to 160	6 inches	2 feet
Lettuce	Every month	Every month	Every month	3 to 10	75 to 100	8 to 12 inches	10 to 15 ins.
Melon	March	Aug. to March	Aug. to March	8 to 12	110 to 130	8 feet	8 feet
Mustard	Any time	Aug. to Feb.	Any time	3 to 8	30 and on	9 to 12 ins.	1 foot
Okra	Any time	Any time	Any time	6 to 12	40 and on	4 feet	4 feet
* Onion	Sept. to March	Sept. to March	Aug. to March	6 to 10	120 to 180	3 inches	1 foot
Parsley	Feb. and March	Oct. to Jan.	Oct to Jan.	6 to 24	90 to 120	4 inches	1 foot
Peas (English)	Nov. to March	do do	Nov. to Jan.	5 to 10	60 to 90	3 inches	3 feet
Pepper	Any time	Any time	Any time	4 to 10	130 to 150	2 feet	2½ feet
Potatoes	Feb. to March Aug. to Sept.	Oct. to Jan.	Nov. to March	..	75 to 100	10 inches	2½ feet
Pumpkins	March	Aug. to March	Aug. to March	6 to 10	100 to 125	8 feet	8 feet
Radish	Every month	Any time	Every month	3 to 6	25 to 50	2 inches	1½ feet
Spinach (Callalloo)	March	do do	do do	6 to 12	60 to 75	4 inches	1½ feet
Squash	March	Aug. to Feb.	Aug. to March	6 to 10	60 to 75	4 feet	4 feet
Tomato	Jan. to April	Sept. to Feb.	Oct. to March	4 to 10	125 to 150	2 feet	3½ feet
Turnip	Every month	Oct. to Feb.	do do	3 to 7	60 to 75	6 inches	1½ feet

* Best seed available September to October.

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" " 2' 6" x 5' 6"		15s. " "
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" " " " 3' x 6' 6"		38s. " "
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" " 2"		9s. " "
BACK MOULDING 2"		8s. " "
" " 1½"		6s. " "
" " 1"		5s. " "
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BRANCH NOTES.

All Reports received are acknowledged in this section of the Journal. This month we have only been able to put in print Notes from Branches who have not yet had a publication this year.

Branch Secretaries should **write on one side of the paper only.**

[Ed.

ST. MARY: Albany.—Meeting 15th August with Mr. S. N. Young, 1st Vice-President presiding. There were present Mr. C. V. Henderson, Asst. Instructor and three members. Mr. S. N. Young, delegate to the Half-Yearly General Meeting gave his report. He also told of his attendance at the Course at Hope where he heard lectures on Stock-rearing. The Instructor who had been in the district since morning spoke of his visits to Mr. J. Forbes' holding where he examined soils to Mr. Robert Davis where he performed manurial experiments, and to Mrs. I. Belnavis where he did castrations. Continuing on the topic of manure he advised the planters to rear some kind of animal by which something will be given back to the soils, and stressed the necessity for green cropping among bananas. At this point he was asked to deal with the application of artificial

anures which he did and advised the use of burnt lime on the stiff clay soils. The eeting then eulogised the work of Mr. H. G. Young, Asst. Secretary who was leaving e district and wished him good luck. The meeting ended with The King.

Islington P.O. N. P. CLARKE, Secretary.

Lucky Valley.—Meeting held 21.8.34. Present: T. A. Burke, 3rd Vice-President residing and eighteen other members, the Instructor Mr. Coke and the Secretary. Correspondence re the distribution of the Grape Fruit suckers to members was read and oted. Mr. Saunders spoke on treatment of Coconuts by salt and showed what salt an be had at 30/- per ton. The Instructor spoke on the matter and the Secretary was structed to communicate with the Parent Society on the possibilities of procuring salt. The Instructor said that if coconuts were forked around and white lime applied, they would be greatly benefitted. Mr. Pottinger spoke on the Ham and Bacon Industry. The Instructor suggested that specimens should be procured and sent to the Parent ociety. Five Authorised Persons reported all correct. The bad condition of the Gayle Market was mentioned and after a lengthy discussion the meeting requested the Secretary o take up the matter with the Parochial Board The matter of a Cemetery was discussed nd it was decided to keep it on the agenda and in the meantime to refer it to the Parent ociety, pointing out that the present custom caused pollution of Water Supplies and the eterioration in value of lands. The Instructor showed a cob of White Corn grown by Mr. Comrie and spoke on it. He also spoke on the one root system of treating Panama Disease, showing the danger and informed the meeting that the onus is on the planter in o-operating with the Plant Disease Inspectors. He also spoke on the Citrus Industry howing the interest the Government is taking in it and informed those who applied or plants to make ready the holes, as these would have to be inspected and a recommen-ation made to the Government before the plants can be obtained. After a very lengthy nd interesting lecture the Chairman thanked the Instructor. A letter from Authorised Person Riley was read and noted. Four new members were elected. The meeting erminated with the singing of the National Anthem.

Lucky Hill P.O. F. WRIGHT GEOHAGHAN, Secretary.

Marlborough.—Meeting 28th August. Present: Mr. C. D. Henderson, Asst nstructor; Mr. Z. Ffrench, President, presiding, 10 other members and one visitor. Delegate to Half-Yearly General Meeting presented his report. Re Presentation Fund for Mr. J. A. Banks, it was decided that this be left open. Authorised Person C. MaGaw eported two arrests. His badge and handcuffs were in good order. A new member vas admitted. Instruetor addressed the meeting on Cane planting, Citrus Industry nd Coffee Planting. A vote of thanks was given him. Matters of minor importance vere discussed. Meeting ended with National Anthem.

Pear Tree Grove P.O. DAVID AUG. FORD, Secretary.

Rock River.—August . No meeting was held on account of heavy showers of rain.

Mt. Regale P.O. J. A. BOWEN, Secretary.

Higbgate—It is gratifying that a Branch has been formed here. On the 8th August, 22 members and Instructor Mr. C. D. Henderson met at a previous business meeting; 16 members paid in their dues and pledged their support. The following officers were elected: W. R. Aquart, President; E. DeLisser, 1st Vice -President; C. L. Duquesney, 2nd Vice-President; J. E. Grooves, 3rd Vice-President; C. R. Parboosingh, Treasurer; E. W. Parkinson, Secretary. Instructor Henderson congratulated the officers and members upon their success in the formation of the branch which he said was a real necessity for Highgate. He then went on to show some of the things the Agricultural Society stands for, its deep interest in the smaller cultivators and its readiness to assist n urging them on to a hetter and more scientific methods of cultivating, so that the maximum of success may be attained. He showed the importance of agriculture and advised everyone to adopt the best methods to impvrove crops.The President impressed on all the necessiry for the improvement of the bananas. He advised the use of manure. Mr. Henderson thanked the President for his keen interest in the Branch and said he hoped that his effort would be appreciated by all. The meeting was brought to a close by the singing of the National Anthem.

Highgate P.O. E. W. PARKINSON, Secretary.

PORTLAND: Belvedere.—Meeting 10th August. Present: Messrs. W. A. Coates, President; D. A. Jones, Assistant Instructor and five other members. The Instructor spoke of the meeting of the Associated Branches held in Port Antonio and said useful

addresses were given and all Branch Societies should be represented at such meetings. Continuing he said in consequence of Panama Disease the output of bananas was low; but no one commodity can support a community. All kinds of crops should be grown, and he could commence the growing of large crops of citrus. Portland as a rule supplied early crops of citrus and then she would have the advantage of obtaining the best prices. He advised that advantage be taken of the Government Farm where the best and cheapest plants may be obtained. A vote of thanks was extended to the Instructor. The Treasurer's report showed £1 8s. 4½d. in hand. The meeting terminated by the singing of the National Anthem.

Prior Park P.O. L. C. BLAIR,
Secretary.

WESTMORELAND: Darliston.—Meeting August 17. Present: Mr. C. J. Stewart, President, and some other members. The matter of a pound was discussed. The show to be held on Easter Monday, 1935, was dealt with at length. The Secretary was deputed to send the necessary sum to the Parent Society as a guarantee for the date of the Show as also the draft prize list for his revision. At Authorised Person Roland Forbes' request, it was decided that he be transferred to the Cairn Curran Branch as he would be residing in that district. Non-attendance at meetings by some of the Authorised Persons was considered and it was suggested that applicants for the position of Authorised Persons should attend Branch Meetings for some time before nomination as many of them absent themselves without apology as soon as they received their equipment. The Secretary was asked to circularise all neglectful Authorised Persons instructing them to attend the next meeting. Minor matters were dealt with and the singing of the National Anthem terminated the meeting.

Darliston P.O. A. A. McDONALD,
Secretary.

Grange Hill.—Meeting 30th August. Present: Rev. J. J. Thomas, President; Mr. J. A. Graham, Instructor, and 31 other members. The service of the Saanem Ram given by the Hon. Dr. J. W. N. Hudson was discussed. The Linton Pen Land Settlement Scheme came up for much discussion. The Instructor addressed the meeting onManuring the Soil and the use of Fertilizers. The condition of the main road with the Bulstrode water across it, was mentioned and it was suggested that the proper authorities be asked to put a culvert there. Meeting closed with the National Anthem.

Grange Hill P.O. C. C. CAMPBELL,
Secretary.

TRELAWNY: Duanvale.—Meeting 6th August, when 20 members were present. The chair was occupied by Mr. David Campbell, Vice-President. A discussion on the growing of Irish Potatoes followed and proved very interesting and instructive. Agenda for next meeting will include a debate "That Sugar is a more important Industry than Banana." One new member was enrolled. The meeting adjourned after the singing of the National Anthem.

Duanvale P.O. S. N. JOHNSON,
Secretary.

Spring Garden. Rock Spring.—Meeting 9th August. Present: Mr. P. L. Burnett, 1st Vice-President, presiding; Mr. F. W. Kelly, Instructor, 16 members and some visitors. A resolution re District Constables was passed. The Instructor advised that the names of the nominees should be submitted to the Inspector for the parish who would make inquiries about them. The Instructor gave a very lengthy and eloquent address on Intensive Cultivation. The meeting terminated by the singing of the National Anthem.

Albert Town P.O. L. C. COY,
Secretary.

ST. ANDREW: Content Gap.—Meeting 18th August. Present: Mr. C. Warner, President; 8 other members and one visitor. Letters were read from the Parent Society re the coffee question and after a short deliberation it was tabled until the help of the Instructor could be secured. The delegate to the Half-Yearly General Meeting, Mr. L. M. Lyttle tendered his report and spoke at length on the deliberations of the day. He also spoke on the "firestick cultivation." He was heartily thanked for his report. The President gave an address. A most enjoyable meeting closed with the singing of the National Anthem.

St. Peters P.O. L. A. WILSON,
Secretary.

Hall's Delight.—Meeting 24.8.34. Present: Rev. J. J. Higgins, presiding, Acting Instructor Mr. H. C. Miller, Dip. Agric., I.C.T.A., and eight others. A hearty welcome was extended to Mr. Miller by the Chairman on his first visit to the Branch and he was

called upon to address the meeting. Mr. Miller expressed pleasure at being present. He said in these days cultivators in order to achieve success, must put in practice improved and modern methods. The poor cultivator was often handicapped in obtaining the necessary implements; but if all the members united they could get the necessary tools, each member subscribing a small amount. He exhibited a diseased tomato and thoroughly explained the cause and cure of the various enemies of this particular plant. He advised the Branch to purchase a spray pump and by applying substances, e.g., 'contact insecticides,' would destroy the enemies of the tomato. Subsequently he spoke on the advantages of 'mulching' and recommended the use of a plant commonly known as 'shakka,' which he found thriving luxuriantly in the district. After encouraging the members to stick to the Branch with might and main, he took his seat receiving a very hearty applause. The Chairman next had a friendly talk with the members re the purpose the Society is serving, and how they may help to increase its membership, and thanked the Instructor for his inspiring and explicit address. Minor matters were dealt with, and the singing of the National Anthem terminated the meeting.

Mavis Bank P.O. GEO. H. HIND,
Secretary.

ST. THOMAS: Hagley Gap.—Meeting 24.8.34. Instructors McLaren and Miller were unavoidably absent. 15 members were present. Members of the No. 4 division of the Parochial Board not having responded to the invitation to visit this section of the parish, the house felt displeased and authorised the Secretary to write them to the effect. The best day for the D.M.O. to visit the Hagley Gap area was also discussed and decision was deferred to the next meeting. Mr. C. A. Campbell, delegate to the last Half-Yearly Meeting gave his report and obtained a hearty vote of thanks from the House. The matter of Soya Beans came up for discussion. The Secretary was asked to send an application to the Parent Society for at least 4 quarts and also to obtain information and other particulars in regards to planting, etc., etc. Mutual Aid working of members came in for discussion. It was agreed that members should band themselves to visit the fields of other members for working, planting or pruning, etc. at specified dates. The matter was left over for the next meeting for the whole scheme to be put into execution. The matter of the Branch having Agricultural Gardens or plots was brought up; but was deferred to next meeting. Authorised Persons gave in their reports and presented their hand cuffs, etc. for inspection. The President made a brief address to them to be vigilant. A very profitable meeting came to a close by the singing of the National Anthem.

Hagley Gap P.O. J. B. HEYWOOD,
Secretary.

HANOVER: Windward.—Meeting 25th August. Present: Mr. C. Chambers, President and a good turnout of members and visitors; also two Agricultural Instructors, Mr. C. C. Hastings, of Hanover and Mr. Graham of Westmoreland. The Branch brought off a Corn Competition. There were over 20 exhibits each consisting of six ears of the best seed corn grown by the members and others. Four Prizes were offered and the following were the winners: Mr. C. Chambers, 1st Prize, 2/6; Mr. J. Hastings, 2nd Prize, 2/-; Mr. L. Heron, 3rd Prize, 1/6; Mr. A Ellis, 4th Prize, 1/-. The Judges were Messrs. Hastings, Graham and Malcom. After the judging, the prizes were handed out by the Secretary. The President extended the thanks of the Branch to the Judges and hinted his intention of bringing off a Banana Competition later on. Mr. Hastings in replying, expressed his appreciation of the effort put forth to create interest among the members of the Branch. He promised to give a prize of 10/6 towards the Banana Competition. He then gave a very illuminating lecture on the cultivation of corn. He dealt with every phase of the subject from the selection of the Seed corn to the storing of the grain. A hearty vote of thanks was accorded him. Mr. Graham spoke on the curing of Coffee. His lecture was well received and he was thanked. The following were agreed on:—(a) That a Banana Competiton be held on the 3rd Saturday in November; (b) That a letter be sent to the Parochial Board of Hanover re Road No. 17; Minor matters were discussed and the meeting terminated.

Great Valley. J. Z. MALCOLM,
Secretary.

CLARENDON: Mocho.—Meeting 3rd August. Present: Mr. G. A. Hall, President; W. L. Shirley, Instructor, 14 members and 12 visitors. Among the visitors were Mr. J. J. Mills of the Mico College to whom a hearty welcome was extended. Mr. Mills responded with an inspiring address emphasizing the worth of agriculture. Several other important matters were dealt with. The Instructor gave his usual address, stressing the importance of proper budding. The meeting closed with the singing of the National Anthem.

Mocho P.O. R. D. BARNES.
Reporting Secretary.

Oxford.—Meeting 21st August. There were six members present. The Secretary was asked to enquire from the Parent Society why an Instructor has not visited the Branch since the resignation of Mr. Banks. The meeting was brought to a close by the singing of the National Anthem.

Free Hill P.O. R. A. THOMAS,
Secretary.

ST. ELIZABETH: Pedro Plains.—Meeting 3.8.34. Present: Rev. T. E. McKay, President; Messrs. H. W. Lynch, A. L. Virtue, Instructors; nine other members and two visitors. Time of meeting was changed to first Friday of each month. President announced the granting of Telephone Station for the district. Announcement received with applause. Instructor Virtue dealt with All St. Elizabeth Show and read Prize List. Manufacture of Cassareep and Tapioca dealt with. Instructor Lynch promised to seek a market for the latter. He addressed the meeting on Sanitation and the importance of having improved sanitary conveniences in the home. Address was comprehensive as well as educative. Instructors were thanked. Minor matters were dealt with and meeting terminated with singing of National Anthem.

Pedro Plains P.O. C. P. FORD,
Secretary.

Springfield.—Meeting 3rd August. Present: Rev. W. J. Driver presiding, 18 members, the Instructor, Mr. Wray and 31 visitors. Instructor gave brief report of Half-Yearly Meeting and emphasized the Citrus Proclamation now introduced also the zoning of districts by Instructor so that every one who is an agriculturist will come in contact with the Society. M.L.C. arrived at this stage and was welcomed. Mr. C. Scarlet explained come of the hardships that many people were encountering, especially with regard to the payment of taxes and the M.L.C promised to do his best to help. He also asked the visitors to come again and join up if possible as only a very small proportion of the agriculturists of the island were members of the Agricultural Society which was the most important organisation as far as they are concerned. The M L.C. was thanked by the meeting. Messrs. W. and D. Brumley expressed their pleasure of having joined the Branch as they find great benefit from it. Minor matters were dealt with and the meeting rose at the singing of the National Anthem.

Springfield P.O. J. A. WOODSTOCK,
Secretary.

Malvern.—Meeting 24th August. Owing to the inclement weather, the attendance was smaller than usual. Present were: Mr. T. M. Fagan, presiding; Mr. H. W. Lynch, Instructor and four members. Mr. E. B. Brown, delegate to the Half-Yearly General Meeting gave a very comprehensive and interesting report, and received a hearty vote of thanks. Next followed a discussion on the forthcoming St. Elizabeth Show. The Instructor reminded the meeting that it was the duty of each branch in the parish to co-operate. He made reference to special classes on the Prize List in which he advised members to compete and gave hints as to how the products are to be presented for exhibition. A contribution from the funds of the Branch was voted towards the show. Members were advised to improve their breeds of small stock and received instruction as to how to procure the services of a reliable dairy bull and a Saanen ram. Minor matters were dealt with and the meeting terminated with the singing of the National Anthem.

Malvern P.O. (Miss) E. I. BLAKE,
Secretary.

ST. CATHERINE: O'Meally.—Meeting August 30. Present: Mr. J. Dillon, President and sixteen other members. Authorised Persons gave reports and presented handcuffs and badges. One arrest was reported. The President as delegate to the General Half-Yearly Meeting gave his report. The report was adopted and he was thanked. Relative to the proposed visit of the Hon. T. J. Cawley to the Lucky Valley Branch, this branch decided to combine its efforts with the above-named branch. Secretary moved that a nursery be established. The Secretary urged better co-operation. Two new members were enrolled. Minor matters were dealt with and the meeting closed with the singing of the King.

Harker's Hall P.O. AMOS A. HENRY,
Secretary.

Content.—Meeting August 29. M. M. Greene, Esqr., presided and mentioned that the Acting Governor was expected to visit Bellas Gate at an early period. A report from the Women's Auxillary stated that that Branch was making rapid progress. After the reading and discussing of correspondence, the President of the Juveniles reported that seeds for the growing of vegetables were got and sown. Authorised persons gave reports. It was decided that a grindstone be procured for the Branch. After other important matters were discussed the meeting terminated with the singing of the National Anthem.

Bellas Gate P.O. G. G. PLANTER,
Reporting Secretary.

MANCHESTER: Pike.—Meeting August 9. Present: Messrs. M. N. Thompson (Instructors), John Foster, President, and 10 others. The President made a few remarks re the modern scientific methods of cultivation as compared with the methods of his boyhood days. Arising out of the minutes, it was decided to procure a pure bred Saanen ram and to call a special meeting to decide the question of a caretaker. As it was late, the Instructor had to forege his lecture on "the Cultivation of Bananas," which he had begun at the previous meeting. Nevertheless he achieved a lot that day by the way of demonstrations on the holdings of Messrs. Wint, Smith and Salmons. The meeting adjourned with the singing of the National Anthem.

Coleyville P.O. IVOR E. R. GREEN,
Secretary.

Royal Flat.—Meeting 8.8.34. Present: N. Nash, Esq., J.P., President; Instructor Darby, 14 members and 2 visitors. Mr. John Peart was nominated an Authorised Person. Rules were read to him and explained. Secretary as delegate to Half-Yearly Meeting in Kingston reported exhaustively and was thanked. Matter of Goat rearing again discussed. Juvenile Branch will be started next month. Branch discussed the getting of a ram. Secretary instructed to correspond with the Secretary, J.A.S. on means of purchasing it. Minor matters considered and meeting closed with National Anthem.

Williamsfield P.O. W. LISTER JOHNSON,
Secretary.

ST. ANN: Pedro.—Meeting 29th August. Present: Instructor C. V. Atkinson, Mr. W. J. Francis, President, 10 members and 3 friends who became members. The Instructor on being asked to explain conditions under which a Juvenile Branch could be formed did so to the best of his knowledge and promised to get fuller information from Mr. O. P. Martin, the Founder of this Branch in St. Catherine. A very healthy interesting and profitable discussion on Negro Yam planting took place. It was pointed out that Negro Yams need great care and handling to give good production. The soil if possible should be well tilled. Mulch in warm climate not in grades low-lying. Warm situations better than cold. Some advocate adding manure in hills; others on surface land between rows. The hills should be about 6 or 7 feet apart, and one large or two ordinary sized heads planted. Care should be taken to set the eyes so that in case of two eyes on a head one is beside the other and not one over the other. The greatest care should be taken in not placing the heads deeply. Miss M. E. Francis delighted the meeting with a song for which she was heartily thanked. The National Anthem terminated a very good meeting.

Bensonton P.O. C. L. BECKFORD,
Secretary.

ST. JAMES: Roehampton.—Meeting 11th August. Present: Messrs. J. N. Tharpe, President; W. D. Marr, Instructor; and about 15 other members. Arising out of the minutes were the following:—(a) Protection of one of the chief springs of the district; (b) Police protection for one of our districts; (c) Lecture to our Authorised Persons. Two new members were duly elected. The Secretary who was a delegate to the Half-Yearly General Meeting in July gave his report and the Instructor supplemented it. Both the Instructor and the Secretary showed that much important business was transacted. They received the thanks of the house. The question re the condition of one of the Parochial Roads of the district was discussed, and all felt that the authorities should be asked to do something to put the road in a better condition. After dealing with matters of minor importance the meeting was brought to a close with the singing of the National Anthem.

Anchovy P.O. J. AUG. RHODEN,
Secretary.

When corresponding with Advertisers, mention the Journal of the

JAMAICA AGRICULTURAL SOCIETY.

Other Reports Received.

Branch.	Date of Meeting.	Attendance.	Business.	Secretary.
St. Catherine.				
Bellas Gate ..	13.8.34	Over 100	Addresses by Hon. T. J. Cawley and Mr. Baxter, Secretary of the J.A.S.. Discussion re proposed Fair	A. A. McCurdy.
O'Meally ..	26.7.34	10	Branch of Government Savings Bank. Authorised Persons. Banana Festival.	Amos A. Henry.
St. Mary.				
Baxter's Mtn. ..	21.8.34	..	Rat Poison. Authorised Persons. Addresses by three members and Instructor Henderson.	R. J. Lawson Ricketts.
Preston ..	29.8.34	6	Water Supply. Panama Disease.	I. A. Amiel.
Portland.				
Craigmill ..	7.8.34	..	Report on Parish Association Meeting. Citrus Industry. Panama Disease. Address by Instructor Jones.	(Rev.) T. Lawrence.
Rock Hall ..	13.8.34	26	Pig rearing. Authorised Persons. Address by Mr. W. Harper Watson.	L. Morgan.
Belle Vue ..	28.8.34	..	Authorised Persons. Juvenile Branch Address by Instructor G. R. Graham.	Victor V. G. Brown.
Clarendon.				
Crofts Hill ..	9.8.34	12	Reportof Half-Yearly General Meeting. Irish potatoes. Authorised Persons. Addresses by four members.	E. A. Downie.
Mt. Providence	14.8.34	16	Sugar Cane Industry. Address by Inspector Shirley.	P. Gilfillian.
Pleasant Valley	21.8.34	..	Additions to Schedule A., Law 4 of 1909. Address and Radio entertainment by Mr. R. O. Terrier.	Mrs. A. A. Flyter.
Manchester.				
Comfort Hall ..	10.8.34	17	Report of delegate to Half-Yearly Meeting. Nursery. Address by President.	W. A. White.
Ebenezer ..	23.8.34	..	Live Stock. Authorised Persons. Address by Instructor Darby.	L. Fletcher.
Fairfield ..	16.8.34	12	Finances. Authorised Persons. Small Stock. Coffee Industry. Address by Instructor Darby.	H. H. Williams.
Maidstone ..	28.8.34	6	Pimento Disease; Soya Beans Address by Instructor Darby.	D. R. Wellington.
Westmoreland.				
Holly Hill ..	17.8.34	10	Local Show. Dairy Industry. Small Stock. Address by Instructor Marr.	F. J. Cooke.
St. Elizabeth.				
Kilmarnock ..	14.7.34	9	Nursery. Public Tank. Post Office. District Nurse Sanitary Officer.	J. E. Monteith.

Other Reports Received, contd.

Branch.	Date of Meeting.	Attendance.	Business.	Secretary.
Hanover.				
Lethe ..	29.8.34	..	Postal facilities, Railway Siding. Land Settlement. Authorised Persons. Banana Borers.	C. E. Wilson.
St. Thomas.				
Middleton ..	29.8.34	..	Crown Lands. Authorised Persons. Address by Instructor McLaren.	Miss M. A. Blake.
St. James.				
Salt Spring ..	8.8.34	37	Vegetables. Banana Borers. Address by Instructor Marr	L. E. Dillon.
Trelawny.				
Ulster Spring ..	13.8.34	..	Road. Land Settlement Scheme.	I. C. Williams.
Wakefield ..	7.8.34	..	Local Show, Pound.	E. S. Bliss.
Waldensia ..	6.8.34	..	Road. Authorised Persons. Irish Potatoes. Market Fees.	P. E. Carey.

Jamaica Agricultural Society.

MEMBERS' EXCHANGE COLUMN.

The following are offered *for sale.*

Description Produce or Livestock.	Price.	Name.	Address.
Pure bred and half bred Essex and Berkshire pigs, ready for delivery	On application	W. Harper Watson	St. Margaret's Bay.
Sheep manure: reasonable prices, excellent for vegetables and gardens	—	Secretary	J.A.S.
Goat manure	3/- 100 lbs.	Secretary	J. A. S.
One Yearling Bullkin; Sire—imported Brown Swiss. Dam—14 quart. Big cow.	£12.	Apply Cockburn	Hagley Park Rd.
One Fordson Tractor; good condition.	£25	Apply Cockburn	Hagley Park Rd.
One Rototiller; for high-class cultivation, particularly vegetables.	£50	do.	do.
1, good size, well bred grade Holstein Bull, age 5 years old. Sire imported	On application	Secretary	J.A.S.
1, well-grown 2 year old Holstein Bulkin same breeding as above	On application	Secretary	J.A.S.
Plymouth Rock Cockerels about 8 mos. old	8/-, 10/- ea.	Mrs. Clarke	44 Beechwood Ave., Cross Roads
		Roper, Frank	Moneague
White and Silver King Pigeons reared from imported parents	15/- pair	P. V. Joseph	8 Ardenne Road, Half-way Tree. Tel. 6593.
Jerusalem Artichokes	On application	Mrs. C. Victor Munn	Mavis Bank

Department of Science and Agriculture.

GOVERNMENT LABORATORY.

*ARSENITE OF SODA.	
Supplied in original unopened drums only.	
100 lb. Drum	£1 10 4
50 lb. "	0 15 2
25 lb. "	0 7 7
The cost inclusive of drum and crates.	
Drums and crates are not returnable.	
PARANAPH	3d. per lb.
CARBON BI-SULPHIDE, for use in the fumigation of corn, etc., attacked by weevils and for the destruction of ants and *grubs in the soils as well as for treatment of clothes and* books suffering from insect attacks	9d. per lb.
Also to be had in 56 lb. Drum at	£2 2 0
N.B.—All orders for Carbon Bi-sulphide must include the cost of the iron drum for storing. When drum is returned in good condition, a refund of cost will be made.	
Iron drums for storing (to hold 5 lbs.)	3/6 each.
" " " (to hold 10 lbs.)	5/4 each.
THYMOL POWDERS, for worms and bots in horses and mules	4d. per pkt.
RAT POISON (supplied to Licensed Druggists only). In bulk including cost of container	7d. per lb.
Put up in strong Manilla envelopes holding one ounce each	9d. per 16 pkts.
N.B.—Orders for less than 16 packets not accepted. All applications must be accompanied by an agreement to retail the poison to the public at a price not exceeding *one penny per packet, one penny per ounce or nine pence* per lb.	
CYANOGAS. 1 lb. Tin "A" dust........................	1/10 per tin.
5 lb. Tin "A" dust........................	9/- per tin.
5 lb. Tin "G" fumigant....................	7/4 per tin.
25 lb. Tin "A" dust........................	£1 9 2 per tin
25 lb. *Tin Citrus dust*......................	£1 9 2 per tin
*TESTING OUTFITS, COMPLETE, including cost of containers and mailing case	7/2 each
*STANDARD IODINE SOLUTION, in 9 oz. bottles (including cost of bottle, 6d., and mailing case 2/-)	3/- each.
*STARCH SOLUTION, in 6 oz. bottles (including cost of bottle 4d. and mailing case 8d.)	1/3 each.
*SODIUM BICARBONATE, in 6 oz. bottles (including cost of *bottle 4d., and mailing case 8d.)*....................	1/3 each.
*25 C.C. CYLINDERS (for dip testing)	2/2 each
*MIXING BOTTLES (" " ")	4d. each
FLY KILLER for the extermination of flies, mosquitoes, etc.	5/- per gal.

N.B.—Purchasers of Fly Killer must provide their own containers

Credit given for all containers returned in good order, if originally charged for Supplied by Rail or Post, carriage free. Freight chargeable on supplies by Coastal Boat.

All orders should be addressed to "The Director of Agriculture, Kingston P.O. and must be ***fully prepaid.***

State full address, nearest railway station or shipping port.

***Supplied to owners of Registered Dipping Tanks only.**

THE JOURNAL

OF THE

Jamaica Agricultural Society.

The more people do the more they can do; he who does nothing renders himself incapable of doing anything; while we are executing one work we are preparing ourselves for undertaking another.

Vol. XXXVIII. OCTOBER, 1934. No 10.

BOARD OF MANAGEMENT.

The regular monthly meeting of the Board of Management of the Jamaica Agricultural Society was held at the office of the Society, 11 North Parade, Kingston, on Wednesday, the 5th September, 1934, at 11.30 a.m. There were present: Hon. T. J. Cawley, First Vice-President, presiding, Rev. W. J. Thompson and Hon. George Seymour Seymour, Vice-Presidents; Messrs. H. E. Lewis, T. P. V. McDaniel, U. Theo. McKay, D. D. Phillips, W. Harper Watson, W. H. W. Westmorland, T. R. Williams and the Hon. P. W. Sangster; Mr. P. St.L. Bacquie, Supervisor of Instructors and the Secretary, Glaister Baxter. Mr. C. O. Cover attended shortly after the meeting began.

Apologies for Absence.

Apology for absence on behalf of the Director of Agriculture, the Hon. A. C. Barnes was tendered.

Confirmation of Minutes of the previous Meeting.

Copy of the minutes having been sent to each member of the Board, they were taken as read, and on the motion of Mr. Westmorland seconded by Mr. Lewis, were confirmed.

Matters arising out of the previous Minutes.

(a) *Statement by Secretary.*—The Secretary read the following statement:—

3rd September, 1934.

Gentlemen,

Major A. R. Moxsy and Mr. H. R. Sharpe have kindly consented to serve on the Special Committee appointed on the Cane Farming Industry.

Census of Pigs.—Directions have been issued to make a census of pigs as instructed by the Board at their last meeting.

Asst. Instructor Virtue.—The transfer of Assistant Instructor Virtue is arranged to take place on 1st October.

Messrs. Manton & Hart are now engaged in drafting the form required to indemnify the Board against damage consequent on work by the Instructors.

Statistics regarding the importation of Agricultural implements, Live Stock and Dairy equipment have been prepared as directed.

All other correspondence has been carried through.

(Sgd.) Glaister Baxter,
Secretary.

(b) *Instructor Thompson and Potato Blight: Report of Committee of Enquiry.*—The Secretary read the following:—

August 29th, 1934.

To the Members of the Board of Management:

Gentlemen,

You appointed us a special committee to consider the Potato Blight situation in Manchester and the conduct of Instructor Thompson in connection therewith; also you empowered us to enquire generally into Instructor Thompson's conduct and competence.

We met at Christiana on Wednesday, 18th July, 1934, the entire membership of the committee being present.

Your committee took evidence from several parties relative to the matter and again met on Wednesday, 29th August, 1934, at the offices of the Society, Kingston, to further consider the evidence and to arrive at the findings and recommendations that should be made to the Board. The entire membership of the committee was again present.

Your committee recommends as under:

That in regard to reporting the potato blight in Manchester the majority of your committee, consisting of Hon. T. J. Cawley, Mr. T. P. V. McDaniel and Mr. H. E. Lewis considered the Instructor negligent. Messrs. D. D. Phillips and U. Theo. McKay considered that there was no negligence on the part of the Instructor.

Your committee wishes to bring to your notice that the Instructor's monthly reports for March and April, 1934, mentioned the presence of Potato Blight in Manchester but it appears that neither the Supervisor, the Instructor nor the farmers suspected the serioousness of the situation.

The committee finds that Instructor Thompson's conduct on an occasion to Mr. Chas. H. Shilletto was not what it should be and as an Agricultural Instructor his conduct was blameworthy.

The committee deplores the tone of Instructor Thompson's explanatory minutes to the Supervisor.

The committee recommends that the Instructor be censured for his negligence and misbehaviour.

The committee recommends that the Instructor be transferred from his present Instructoral area at his own expense.

Notes of evidence of the enquiry held at Christiana were recorded.

(Sgd.) T. J. CAWLEY,
Chairman.
" H. E. LEWIS.
" D. D. PHILLIPS.
" T. P. V. MCDANIEL.
" GLAISTER BAXTER,
Secretary of the Committee.

RIDERS TO THE REPORT.

With the exception of the recommendation of the Committee that Instructor Thompson be transferred from his present Instructoral area at his own expense, I agree with the report and therefore sign..

(Sgd.) H. E. LEWIS.

Whilst I endorse the above findings I still differ in the first, namely that of "no negligence," also as to the expense of removal I would suggest that half the cost be borne by the Society.

(Sgd.) D. D. PHILLIPS,
3.9.34.

I signed the report as Chairman of the Committee as it reflects the majority opinion on the various findings. I do not however concur in several important details.

Apart from the question of incompetence on the part of Instructor Thompson, I consider from his behaviour to several members of the public and the tone of his minutes to the Supervisor that he is temperamentally unfitted to be an Instructor. I also consider that Instructor Thompson's competence is very much open to doubt, and that in the interest of the Society, his services should be terminated.

(Sgd.) T. J. CAWLEY.

MINORITY REPORT FROM MR. MCKAY.

"Gentlemen,

Arising out of the Report on Potato Blight sent to this Office by the Microbiologist which said inter alia that had the Potato Blight been reported earlier, much of the crop destroyed would have been saved, a Committee was appointed to enquire into the circumstances surrounding the blight and to find out if any blame is to be laid at the door of the Instructor for that area. As one of the members of the Committee I send you this report as I am unable to agree with the findings of the Committee.

"1. In the March report of the Instructor to the Supervisor he stated in plain English that there was Potato Blight in his area. This report sent to his Supervisor is supposed to be circulated to the Instructors' Committee. The Instructor there discharged his duty and if he did not, as it is evident that others more highly placed than himself did not realise how serious a disease this blight is, it is not justifiable that he should be charged with negligence. Page 8 of the evidence shows that the Supervisor and another Instructor were on the 30th day of April told of the serious loss of the crop that was taking place in Northern Manchester, yet no report was made by these parties until Instructor Thompson sent in his telegram on the 3rd day of May to the General Secretary.

The charge of negligence in my opinion is an error on the part of the Committee, and cannot be sustained.

2. The Committee also enquired into the (a) General behaviour of the Instructor; (b) General tone of explanatory minutes to the Supervisor.

In connection with this I would direct the Board of Management to the evidence of P. St. L. Bacquie, the Supervisor, page 48, and reading that evidence carefully I am unable to arrive at the decision that his general behaviour is unseemly. Twelve witnesses were examined by the Committee and I think I am correct in saying that only one beside the Supervisor stated emphatically that his general behaviour was unsatisfactory.

"I can from personal knowledge aver that the conduct of Mr. Thompson at Mandeville after the meeting of the M.B.A., was unbecoming, and that should be pointed out to him in as strong terms as are consonant with the offence.

(Sgd.) U. THEO. MCKAY,
Member of the Enquiry Committee.

4th September, 1934.

Mr. Westmorland said he did not think an Instructor that was charged with negligence should be transferred from one parish to another. He moved that the services of the Instructor be terminated.

At Mr. Williams' request the Secretary stated that the date of the Instructor's appointment was 2nd January, 1929. Mr. Williams said the majority report appeared to be against the Instructor and asked if there were any complaints on record against this Instructor.

Mr. Seymour suggested that it would have been better if each item had been presented in the form of a resolution. They had before them a majority report, riders to that report from members who signed it and a minority report. He thought it a bit confusing.

Mr. McKay moved seconded by Rev. Mr. Thompson that the Board resolve itself into a Committee to discuss the matter. This was agreed to and the following decision arrived at regarding the points referred to in the report:—

"That in regard to reporting the Potato Blight in Manchester, the Instructor was not negligent.

That the Instructor's conduct on an occasion to Mr. Chas. H. Shiletto was not what it should be, and as an Agricultural Instructor his conduct was blameworthy.

That the tone of Instructor Thompson's explanatory minutes to the Supervisor is deplorable.

That the Instructor should be censured for his misbehaviour.

That the Instructor be transferred from his present Instructoral area."

Mr. McKay moved that the Board resume its sitting. This was seconded by Mr. Thompson and carried.

On the motion of Mr. McKay seconded by Mr. Phillips the decision arrived at by the members in Committee were confirmed.

On the motion of Mr. Thompson seconded by the Chairman the standing orders were suspended to admit the consideration of recommendations of the Instructors Committee which sat that morning, and the Secretary submitted the following:—

"Your Instructors Committee consequent on its deliberations this morning begs to refer to the Board the letter from Mr. W. Harper Watson relative to the transfer of Instructors Thompson and J. A. Graham to be dealt with in connection with the report of the Committee of Enquiry on the Potato Blight.

The Committee recommends:—(i) That as a means of improving the manufacture of wet sugar, the Hon. Director of Agriculture be requested to arrange a special course for

the Instructors operating in the parishes of St. Andrew, St. Mary, St. Catherine, Clarendon and Portland, and also to include this feature in the next instructional course at Hope.

(ii) That the Instructors in the citrus districts of Portland, St. Catherine and Manchester be supplied with step ladders for demonstrations in the reaping of citrus fruit.

(iii) That Instructor Shirley be granted leave during the month of October, and Instructors McLaren and Hastings one month's leave each.

(iv) That the offer of Instructor Byles of his citrus orchard and poultry farm at Linstead for use as a demonstration plot be referred to the Planning Committee which is now considering the general question of Demonstration Plots.

Mr. Cover suggested that each recommendation be dealt with separately.

This was agreed to and the following letter from Mr. Watson was read:—

August 3rd, 1934.

"As there seems to be great dissatisfaction in Manchester re the services of Mr. M. N. Thompson, and in Westmoreland it is felt that Mr. Graham is inclined to politics, I beg to recommend in the event of the Committee finding against Mr. Thompson that he be transferred to Westmoreland and Mr. J. A. Graham to Manchester."

(Sgd.) W. HARPER WATSON.

Mr. Thompson said this recommendation could not be adopted as it stood or the Board would be sustaining a charge against Mr. Graham, and there was none.

This was supported by Mr. Lewis.

On Mr. Sangster's suggestion the letter was received and laid on the table.

Mr. Seymour suggested that the matter of the transfer be left in the hands of the First Vice-President, the Supervisor and the Secretary.

Mr. McKay said he would not agree to that.

Mr. Williams said in view of what Mr. McKay said he would move that the present meeting deal with the transfer.

This was seconded by Mr. McDaniel and carried, six members voting for and four against the motion.

Mr. Williams moved further that Instructor Thompson be transferred out of the Supervisor's area.

This was seconded by Mr. Lewis and on being put to the vote was lost.

Mr. McDaniel moved that Instructor Thompson be transferred to Westmoreland and Instructor J. Graham to the Christiana area.

This was seconded by Mr. Seymour.

Mr. Sangster said he thought it would be a mistake to send Mr. Thompson to Westmoreland. He further asked that if the Secretary was in a position to give the Board advice on the matter, he should do so.

The Secretary said he was glad the Board had given him this opportunity. He had conferred with Supervisor Bacquie, and their recommendation was that Instructor J. Graham be transferred to the Christiana area and Instructor Kelly who he thought very capable of dealing with the present situation in Westmoreland, be sent to that district, and Instructor Thompson be transferred to Instructor Kelly's present district.

Mr. McDaniel said if the feeling of the house was with the Secretary's suggestion, he would be willing to fall in and withdraw his motion Mr. Seymour being agreeable.

The transfers of the three Instructors as suggested by the Secretary were unanimously agreed to.

The meeting adjourned for luncheon.

On the resumption there were present: Hon. Mr. Cawley in the chair, Rev. W. J. Thompson, Messrs. McDaniel, McKay and Williams; Hon. P. W. Sangster, the Supervisor of Instructors and the Secretary.

Mr. Thompson moved that the remaining recommendation of the Instructors Committee be adopted.

This was seconded by Mr. Williams and carried.

Mr. Cover and Mr. Phillips came in.

Further matters arising out of the previous minutes were considered as follows:—(c) *Special Report re Honey Marketing.* The Secretary read the following,—

1st September, 1934.

To the Members of the Board of Management:

Gentlemen,

We your Committee appointed on the terms of the undermentioned Resolutions:—

"Whereas the majority of the apiarists of the Colony feel that a co-operative organization of Bee-keepers for the marketing of honey and the general welfare of the Industry is immediately requested:—Be it resolved that this Half-Yearly General Meeting of the Society, request their Board of Management to co-opeate in the organization of such a concern": met at the Office of the Jamaica Agricultural Society on Tuesday the 28th August, 1934.

We considered the matter and recommend that it is desirable that a Co-operative Marketing Organization be formed in the interest of the Bee-keepers in Jamaica.

We attach to this report a draft contract between the Producer and the Marketing Organization as the basis for further work on this matter.

We considered it desirable that the Constitution of such an Association should be prepared by a firm of reputable Lawyers and recommend that the Board of Management authorise the advance of a sum of money sufficient to have the Constitution prepared by Messrs Manton & Hart, Solicitors, Kingston.

We recommend that after the draft of the Constitution has been obtained a Public Meeting of the Bee-keepers be called under the auspices of the Jamaica Agricultural Society with a view of adopting such Constitution, after which the organization could be launched. It would then be the duty of the Directors of such an organization to plan for the future of their organization.

We are, Gentlemen,
(Sgd.) P. W. Sangster,
Chairman.
" J. W. N. Hudson,
Member of Committee.
" Glaister Baxter,
Secretary of Committee.

Mr. Sangster said he did not know whether the Board desired that the details of the draft contract should be read. It was on the lines of the other co-operative associations existent in Jamaica, only certain words and phrases had been altered to fit in with "honey" instead of "bananas," "citrus" and so on, and he thought that the draft covered the position. He wished also to say that the Committee had met only once, and due to the valuable assistance rendered by the Secretary, Mr. Baxter, in collecting the necessary data and clearing preliminary details, they had been able to do a great deal of work and prepare the report. Dr. Hudson was the other member of the Committee and he acquiesced in the report. The amount necessary for the preparation of the constitution and the contract was not likely to exceed £50, and if the Board agreed to making the advance required, it was proposed to call a meeting of the beekeepers to decide whether they would fall in. He moved that the report be adopted.

The Chairman suggested that before any sum was expended it would be wise to get the beekeepers together and find out if they would accept the principles laid down in the report and see how many beekeepers were ready to come into the organization.

Mr. Sangster said that although they had considered that phase of the question and decided against it, if it was the feeling of the Board that a meeting should be held and the approval of beekeepers of the scheme be first obtained he would offer no objection to the proposal.

Mr. McDaniel supported Mr. Cawley's suggestion and added that the matter of bearing preliminary expenses of such an Association should

be well considered before effect was given to the recommendations of the Committee.

Mr. Thompson said the matter emanated from the Half-Yearly Meeting and he was doubtful whether concrete steps should be taken before submitting the matter to that body. Further it might be a dangerous precedent for them to adopt the scheme until they were sure that the parties concerned were prepared to subscribe to the proposals.

Mr. Lewis came in.

Mr. McKay said they should thank the Committee for the work they had done. He agreed with what the Chairman said. Regarding financing the scheme, if there was any money available he would agree to the advance being made, only it would have to be refunded either from general revenue or the co-operative society.

Mr. Cover said in these matters the people should advance the money themselves, otherwise the principle of self-help would be destroyed.

The Chairman's suggestion that the report of the Committee be accepted subject to the Committee calling a special meeting of the beekeepers and obtaining their views on the subject before undertaking any expenses in the printing of the constitution and contracts, was finally adopted.

(d) *Letter from Dr. Hudson re Instructor and Politics in Westmoreland.*—The Secretary stated that as instructed by the Board at the last meeting he had written to Dr. Hudson asking if he would be agreeable to an enquiry being held by Messrs. McDaniel and Walker. He had replied stating that since the airing of the condition at the last meeting of the Board he thought the situation had improved and so he saw no necessity for further action in the matter and would suggest that the matter be dropped.

The Board acquiesced.

(e) *Licenses under Agricultural Produce Law—Report of Committee.*—The following report was presented:—

August 29th, 1934.

Gentlemen,

We, your Committee appointed to make recommendations relative to the undernoted resolution referred to us by the Board of Management, report as follows:

"Be it resolved that Travelling Licenses under the Agricultural Produce Law be discontinued."

The Committee met at 2.00 p.m. on Wednesday, 29th August, 1934; the entire membership attended.

After carefully considering the resolution and other matters relevant to the Law, we beg to make the following recommendations:

1. *That Travelling Licenses be confined to definite licensed premises, one in each* parish instead of as is at present the case whereby travelling licensees are empowered to buy produce everywhere and anywhere throughout the island.

2. That all persons engaged in the selection of fruit other than at licensed premises should be possessed of licenses.

3. That the Board of Management urge upon the Inspector General of Police the absolute necessity of seeing that the Agricultural Produce Law be more strictly enforced, in view of the fact that it is within the knowledge of the Committee that truck owners and owners of other vehicles purchase various kinds of agricultural produce by going around the country and without the keeping of proper records and without being possessed of any licenses. These circumstances both rob the revenue and tend to the encouragement of Praedial Larceny.

4. That the books recording the purchase of agricultural produce should include not only the names of the growers but the names of the properties on which such purchased produce is produced.

(Sgd.) U. Theo. McKay,
Chairman.
" S. M. Walker.
" W. Harper Watson.
" D. D. Phillips,
" Glaister Baxter,
Secretary of the Committee.

Mr. McDaniel said he did not sign the report, and he felt that the matter should be recommitted and it had not been sufficiently considered. He therefore moved that the matter be deferred.

Mr. McKay moved that item 2 of the report be deleted and the rest of the report adopted. He said the Committee had gone into the matter very thoroughly and there was nothing to prevent the report being received.

After further discussion the Chairman seconded Mr. McKay's motion re the adoption of the report, and this was carried, Mr. McDaniel declining to vote.

The Chairman's suggestion that the next item on the Agenda "Items from unfinished Agenda of last month" be deferred until later, was agreed to.

Statement of Accounts.

(a) *Statement for July.*—The Secretary said this was printed in the minutes of the last meeting.

(b) *Statement for August* was submitted as follows:—

Statement of Accounts for August, 1934.

Receipts.	Estimates £	s.	d.	Total £	s.	d.
To Subscriptions	175	0	0	115	8	4
Affiliation and Journal Fees	175	0	0	147	6	9
Advertisements in the Journal	200	0	0	39	1	6
Bank Interest, etc.	10	0	0	5	0	11
Miscellaneous	10	0	0	..		
Bee Industry Sales	30	0	0	18	9	5
Sales Department, Profits, 1934-35	400	0	0	..		
Government Grant	9,500	0	0	3,958	6	8
Grant for Bee-keeping Industry	500	0	0	208	6	8
Appropriation from Sales Department Surplus ..	516	15	0	..		
	£11,516	15	0	£4,492	0	3
Balance from 31st March, 1934	..			1,877	4	8
Nethersole Presentation Fund	..			0	2	0
Entrance Fees, Holdings Competitions ..	..			3	7	0
Refunds of Advances	..			271	5	0
Seeds Trading Account	..			1,537	18	7
Hire of Show Equipment	..			9	14	0
				£8,191	11	6
Less Expenditure per Contra	..			7,263	1	0
Balance	..			£928	10	6
Cash in hand	10	15	8			
Cash at Barclay's Bank (D.C. & O.) Current a/c	83	3	4			
Cash at Barclay's Bank (D.C. & O.) Deposit a/c	500	0	0			
Cash at Royal Bank of Canada Deposit a/c ..	313	17	6			
Cash at Royal Bank of Canada Current a/c ..	20	14	0	928	10	6

Expenditure.	*Estimates.* £	s.	d.	*Total.* £	s.	d.
By Personal Emoluments:						
Secretary and Office Staff	2,014	5	0	871	17	0
Instructors and Supervisor	7,482	10	0	3,265	0	6
Instructors' Course at Hope	125	0	0	84	2	9
Instructors' Contingencies	100	0	0	58	13	10
Secretary's Office and Special travelling	100	0	0	62	14	1
Printing and Stationery	100	0	0	60	11	10
Printing, and issuing Journals and Reports	750	0	0	156	15	8
Rent and Rates	58	0	0	24	3	11
Rent of Telephones	27	0	0	11	2	8
Postages and Telegrams	10	0	0	4	12	2
Office Furniture· Repairs	15	0	0	5	12	10
Incidentals	50	0	0	22	15	5
Auditors' Fees	25	0	0	25	0	0
Library Books	10	0	0	10	1	2
Experiments and Livestock subsidies	100	0	0	16	0	11
Show Equipment: Repairs	10	0	0	3	1	0
	£10,976	15	0	£4,682	5	9
Bee-keeping Industry	500	0	0	243	6	0
New Office Equipment	40	0	0	35	7	2
Gratuity (Mrs. Barclay)	..			28	0	0
Advances to Instructors	..			435	0	0
Nethersole Presentation Fund	.			9	0	0
Holdings Improvements Competition	..			194	1	8
Plant Diseases Control	..			26	10	0
Local Competitions	..			4	1	0
Seeds Trading Account	..			1,605	9	5
				£7,263	1	0

(Sgd.) Glaister Baxter,
Secretary and Treasurer.

(Sgd.) Donald MacDonald,
Accountant.

Questions.

Mr. McKay on behalf of Mr. Harper Watson, handed in the following questions:—

(1) Would this Board authorize its Secretary to write to the Parochial Boards throughout the island introducing cornmeal manufactured on the Society's premises for use in their institutions?

(2) Does the Board not consider that this would increase the interest in corn-growing in the island. ?

The Secretary was instructed to act accordingly.

Notices of Motions.

Mr. Williams gave notice that at the next meeting he would move:—

"That the Jamaica Agricultural Society declare its support of the Co-operative Movement in Jamaica."

Mr. McKay gave notice that at the next meeting he would move:—

"That the sum of £25 be placed on next year's estimates of the Society for the purpose of encouraging the growing of White Yams in the parish of Clarendon."

Report on Tree Planting in St. Andrew.

The Secretary presented the report on Tree Planting in St. Andrew for half-year ending 30th June, 1934, submitted by Instructor Hanson and stated that a copy has been forwarded to the C.S.O. and the report circulated to the Board.

He was instructed to deal with a query from Mr. Williams on the same matter regarding the prosecutions under the Country Fires Law and also the law prohibiting the sale (or stripping) of mahogany and mahoe bark.

Shows.

(a) *Pisgah Branch—Juvenile Show, December,* 1934.—Letter from the Pisgah Branch giving details of the proposed Juvenile Show and Exhibition to be held in December, and asking for a donation towards prizes was submitted.

It was agreed that One Guinea be granted for this purpose.

Office.

(a) *Leave—Miss Cooper.*—Application from Miss Cooper for leave of absence for one month from 10th September was granted

New Members.

On the motion of Mr. McDaniel, seconded by Mr. Cover, the following were elected members of the Society:—

Messrs. W. N. Bourne & Co., Punta Gorda, British Honduras.
Dr. C. A. Swann, 55 Duke Street, Kingston.
H. E. Allan, Port Antonio.
Brigadier-General H. S. Sewell, Arcadia, Duncans.
C. F. P. Renwick, Chambers, St. Georges, Grenada, W.I.
A. E. Shaw, 7 Central Road, Kencot, Halfway Tree.
L. A. Henriques, 70 King Street, Kingston.
E. A. Goubault, Eccleston, No. 2, Manchioneal.
A. H. Sharp, Orange Bay.
E. W. Barron, Gordon Town.
H. S. Vermont, Trout Hall.

The Chairman mentioned that the Secretary had received a letter from Sir William Morrison who had been elected a member of the Society at the last meeting, expressing appreciation of the activities of the Society during the past year.

Mr. Williams left the meeting.

Other Business.

(a) *Secretary's report on Travelling for August* was submitted and tabled.

(b) *Sick Leave—Mr. Coote.*—Letter from Mr. Coote, Instructor in Beekeeping covering Doctor's certificate recommending one month's leave was submitted.

The leave was granted. The Secretary was instructed to inspect this Instructor's travelling equipment and report on it to the Board.

(c) *Letter from Ginger Hill School re Exhibition and Fair.*—Letter was read from the Ginger Hill School stating that they proposed holding a School Exhibition and Fair on the 21st September, inviting the Secretary to attend and assist in the judging, and also asking for a donation from the Board towards prizes.

The Chairman said these exhibitions were developing and some rules and regulations would have to be made regarding them if they are to be sponsored by the Society. According to the announcement received of this one to be held on the 21st September, it did not appear as if there was enough preparation made for it.

The Board decided that the Supervisor for that area be asked to report on this proposed exhibition.

(d) *Letter from Lucky Hill Branch re cemetries on holdings.*—A letter from the Lucky Hill Branch was submitted stating that the Branch felt that the burying of the dead on small holdings as was customary in some districts was conducive to the pollution of drinking water in

some cases, and that it also tended to reduce the value of holdings; the letter asked for action from the Board in the matter.

The Secretary was instructed to refer the matter to the Parochial Board of St. Mary.

(e) *Letter from C.S.O. re Enquiry re Citrus Industry.*—The following letter from the C. S. O. was submitted and noted:—

No. 4742/34.

4th September, 1934.

"I am directed to acknowledge the receipt of your letter No. 27, dated the 20th August, forwarding a copy of a resolution on the subject of the Citrus Industry which was passed at the last Half-Yearly Meeting of the Jamaica Agricultural Society.

2. The resolution appears to call for a general enquiry into the industry,—an enquiry which, as your Board is doubtless aware, is now being conducted by several Committees of which the Director of Agriculture is either a member or Chairman.

3. The Government considers that the citrus industry is one of increasing importance which requires close attention and care in order that its development may proceed along proper lines It feels nevertheless, that there would be nothing to be gained for the present by appointing another Committee when several dealing with various aspects of the industry have already been formed and are still sitting.

4. In accordance with your desire the resolution together with a copy of my reply will be referred to the Advisory Committee on the Citrus Industry.

(Sgd.) A. R. DIGNUM,
for Acting Colonial Secretary.

The following matters left over from the Agenda for August were dealt with:—

Half-Yearly General Meeting—Matters referred.

(a) and (b) *Resolutions re Protection of native Industries—Poultry, Cattle and Dairy, and re Admission duty free of Agricultural Implements; Livestock and Dairy Equipments,* both from the Liguanea Branch, were deferred.

(c) *The Resolution re Motor Vehicle Law,* asking for speed limit signs in all villages, submitted from the Hanover Branches Associated, was considered, and the Secretary instructed to forward same to the Inspector General of Police.

(d) *Resolution from the Porus Branch asking for a special concession in regard to persons travelling on the Railway to attend the Summer Course* at Hope was submitted and the Secretary directed to forward same to the C.S.O.

(e) *Resolution re propaganda for pruning control for Panama Disease.*—This resolution was submitted and the Secretary was instructed to deal with it.

Mr. Watson came in.

(f) *Resolution re unemployment.*—Resolution from Mr. E. C. E Grant asking that a Committee be formed to take up the question of unemployment, was read.

It was decided that the Board would take no action in this matter.

Live Stock Subsidies.

Applications from Deeside and Pike Branches for the subsidizing of a Billy Goat in the first instance and a Saanen Ram in the Second instance were considered, and approved.

Mr. McKay asked what had been done in regard to the Boar for the John's Hall Branch in Clarendon.

There was some discussion about this matter and the Chairman suggested that the Secretary be empowered to deal with the matter. This was agreed to.

Mr. Thompson and Mr. Watson left.

Diseases of Plants and Animals: Insect Pests.

(a) *Panama Disease of Bananas—Report for June.*—Report on the incidence of Panama Disease for the month of June was submitted and tabled.

Industries.

(a) *Soya Beans.*—The Secretary said he had sent copies of the following circular to the members of the Board and asked that his action be confirmed:—

6th July, 1934.

Gentlemen,

Mr. Lauriston Nunes, who is interested in the Soya bean, has placed a ton of Soya bean seeds at my disposal for distribution, and the money for providing suitable bacteria to start the growth of this seed. This is intended for distribution to interested parties who might like to plant in an experimental way.

He has also placed £2 10s. at my disposal for establishing a trial plot under the supervision of the Society's officers in a high altitude district so as to enable some first hand and reliable information to be obtained as to its production and cost of cultivation.

I have accepted these offers tentatively and should like to have the approval of my Board before committing myself definitely.

(Sgd.) GLAISTER BAXTER,
Secretary.

The Board confirmed the action of the Secretary.

Authorised Persons.

The return of arrests for quarter ending 30th June, 1934, was presented and the Secretary instructed to publish a summary of it in the Journal as usual.

Resolutions from Branches.

The Secretary was instructed to deal with the following resolutions and send them to the departments as indicated by the meeting.

(a) *Toll Gate re Parochial Road 77.*
(b) *Toll Gate re Water Scheme.*
(c) *Mizpah re Constabulary Station, Polling Booth and Public Market for Walderston.*
(d) *Mizpah re Meetings at convenient centres by Instructors.*
(e) *Mizpah re Streets of Walderston to be asphalted.*
(f) *Aberdeen re Road from Quickstep to Pantrepant.*
(g) *Fellowship re Development of Sugar Cane and Tobacco Industries*
(h) *Ebenezer re Citrus plants from Grove Place Nursery.*
(i) *Brompton re change of system of delivery of mails at Fyffes Pen.*
(j) *Lucky Valley re Yaws.*
(k) *Lucky Valley re Post Office.*
(l) *Bull Savanna re Office for Registration of Births and Deaths.*
(m) *Bull Savanna re Post Office at Junction.*
(n) *Bog Walk re One Root System for Panama Disease.*
(o) *O'Meally re Relief Work.*
(p) *Grantham re appointment of additional Headmen or Assistant Instructors.*
(q) *Westphalia re Bridge over Robertsfield Fording.*
(r) *Westphalia re visit of Doctor to District at Vaccination periods.*
(s) *Pike re road signs from Troy through Pike to Christiana.*
(t) *Red Hills re Storerooms attached to Markets in Corporate area.*
(u) *Red Hills re paving of Gullies at Quarry and Chancery Hall.*
(v) *Rock Hall (Portland) re Driving Road into District.*
(w) *Fruitful Vale re Roads into Crown Lands.*
(x) *Fruitful Vale re Telephone connection at Fruitful Vale Post Office.*

(y) *Waterloo (Manchester) re roads into district.*
(z) *Craighead re Water Supply.*
(aa) *Craighead re Road.*
(bb) *Lethe re Post Office.*

Other Business.

(a) *Secretary's Report on travelling for July,* was submitted and tabled.

(b) *Letter from C.S.O. covering an order re Panama Disease of Bananas.*—Letter No. 8150/31 dated 7th August, 1934, covering an order varying the Panama Disease of Bananas Amendment Order, 1931, as regards measures for the treatment of the disease, was submitted.

The Secretary said he was arranging to have this published in the Journal.

(c) *Invitation from Cedar Valley Branch for Secretary to attend on* 14.9.34.—Letter from the Cedar Valley Branch requesting that the Secretary attend their September meeting was submitted, and the Secretary was directed to attend if he could make it possible.

(d) *Llandewey Mango Plot—Report from Instructor.*—Instructor McClaren's report on the Llandewey Plot was submitted; the report indicated satisfactory progress and was noted.

(e) *Further Resolutions.*—The Secretary was instructed to forward the resolutions dealing with the undermentioned subjects to the proper authorities:—

(e) *Resolutions from Portlands Branches Associated re:—*
- (i) *Visit of D.M.O. to Mt. Pleasant.*
- (ii) *Panama Disease Oil.*
- (iii) *Land Settlement Scheme.*
- (iv)) *Parochial Dispensary.*
- (v) *Visits of Medical Officer to Claverty Cottage.*
- (vi) *Flooding of Streams near Fellowship Bridge.*
- (vii) *Culverts at Coolshade Spring.*
- (viii) *Footbridge at Tranquility Spring.*

(f) *Resolution from O'Meally Branch re Government Savings Bank (Branch).*

(g) *Resolution from Gordon Town Branch re Ganja.*

The Board adjourned to Wednesday 3rd October at 11.30 a.m.

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KINGSTON.

THE ESTABLISHMENT AND UPKEEP OF CITRUS ORCHARDS.

By M. S. GOODMAN, Superintendent of Public Gardens.

The success of citrus planting depends to a great extent on location. If placed under unfavourable conditions the orchards will not thrive even though given the best cultural treatment. In considering the choice of a locality individuals who contemplate citrus growing should give careful attention to such factors as soil, rainfall or irrigation, subsoil and drainage, and susceptibility to high winds.

The water supply is of the greatest importance and before planting in dry areas it should be first ascertained if water for irrigation is available and the quantity available during the dry season. Water carrying alkaline salts in solution is injurious, as over a period of years sufficient alkali may be deposited in the soil to kill or seriously injure the trees. When any doubt exists as to the purity of the water a chemical test should be obtained.

Citrus can be planted on a wide range of soils, from ligbt loam to heavy clay, but it is preferable when possible to select a deep loam or medium heavy clay soil which generally contains a fair amount of organic matter.

No soil can be judged by casual observation. The character of the first two feet of soil below the surface is almost as important as the surface soil itself. A piece of land may appear to be of excellent quality but below the surface may be rock, stiff clay, gravel or some other factor detrimental to the growth of citrus plants. Holes can be dug in different places or the testing can be done with a soil auger.

In choosing the site for the orchard the grower must consider factors that have a direct bearing on the success or failure of the orchard to be established, such as climate, soil and water supply. The texture and depth of the soil are as important as the actual fertility. Growers should give careful attention to the points mentioned above, because on them depend to a great extent the success or failure of the orchard.

In the establishment of an orchard the first steps to be taken after deciding on the locality and site are the cleaning and, if necessary, levelling of the land. The land must be bushed and all large trees removed, the roots of large trees should be taken out to a depth of about eighteen inches so that they will not interfere with ploughing and also to prevent the development of any fungus liable to injure the trees.

The site should then be lined out and pegs put in at distances where it is intended to place the plants. It has been recommended that for Grapefruit the distance between each plant should be 25 ft. x 25 ft. and for Oranges 20 ft. x 20 ft. The preparation of the land will vary according to the texture of the soil and other factors. At the pegs holes 18″ square should be dug, left exposed for several weeks and then filled in with surface soil. The surrounding ground should then be forked and the surface soil made into a mound over the filled in hole and left to settle. Trees will not thrive when planted in sub-soil. In the case of heavy clay soils no holes should be dug but an area of six feet square should be forked around the pegs, the soil heaped up in a mound and left to settle until ready for planting. While the mounds are in course of settlement the intervening land should be ploughed and either a leguminous crop or such crops as Tobacco, Peas, Peanuts, Pine

Apple and vegetables planted. This will ensure the soil being worked into an excellent state of tilth.

Planting System.—The chief planting systems used in Jamaica are the square and triangular, the former being the one most in practice. For planting on level land the square system is the best that can be used, the trees being planted in squares cultivation can take place in two directions.

For laying out orchards a wire or cord about one-eighth inches thick is necessary. If plants are to be set out at 25 feet apart small notches should be made on the wire with a file at intervals of 25ft. and in the case of the cord this should be marked with paint. Before either the wire or cord are marked they should be properly stretched. The wire is considered by far the more accurate as the cord will contract on getting wet and is liable to stretch with constant use.

The next step is to determine the longest base line which should be about 10 ft. inside the boundary to allow turning room for cultivating implements, etc. When the base line has been set the marked wire is stretched along it and pegs driven in the ground at each mark. In laying out the side line which must be at right angles to the base line, the best method is to measure 80 ft. along the base line from the first peg and then measure 60 ft. at a right angle to the base line. Temporary stakes are put in at these points and if the distance between them is 100 ft. then the angle is a true right angle. If the lines set at right angles to the base line are determined carefully the setting of the stakes which mark the position of each plant will be accurate.

Planting.—As the rainfall in Jamaica varies considerably during the seasons and in different districts it would not be advisable to give any definite time for planting but it should be usually done after good rains have fallen except in cases where water for irrigation is available and then planting could be done at any time of the year.

Citrus trees should preferably be removed from the nursery when in a dormant state. When actually growing trees are transplanted the percentage of loss is higher than otherwise.

In removing plants from the nursery the following points should be carefully observed. The plants should be pruned back about four days before lifting so as to avoid the double shock caused by cutting back and lifting at the same time. When possible, water should be applied before the plants are lifted and the greatest care should be exercised when lifting the plants so as to avoid damage to the root system and also exposure to the sun and wind. Under certain conditions it is desirable to partially defoliate the plants. Each plant, when it is removed from the soil should be lifted with a complete ball of earth around the roots and its tap root cut as cleanly as possible back to 9 inches of the collar. Immerse the root with earth attached in a barrel of water and wash the roots free of earth. The roots should then be puddled in a mixture of clay and water and wrapped in moistened material.

When the plants are taken to the field where they are to be planted they should be kept in a cool place and the roots not exposed to the air as only little drying is needed to cause the death of the fibrous roots. A hole should be opened in the centre of the previously prepared mound to take the plant. An examination should be made of the root system before planting and any injured roots should be cut off and any excessively long roots should be shortened to avoid any chance of root cramping. When the plant is placed in position in the hole the lateral roots should be sorted out and placed in the order in which they occur

on the main root, and after filling up the hole firmly press the soil with the feet. Sometimes excessive firming of the soil results in root injury and this should be avoided. It is sometimes necessary to shade the plants after setting them out. The plants should be watered immeddiately after planting. If it is necessary stakes should be used to support the plants and the hill covered with a layer of dry material.

Intercropping of the young orchard, while not recommended in general, is permissible and sometimes advantageous. There are numerous cases where the limited financial resources of the grower makes it essential that some income be derived from the land during the period from planting until the trees begin to bear. When intercropping is properly carried out it can be of direct benefit to the trees. It often happens that the grower gives his chief attention to the temporary crops and lets the citrus trees shift for themselves. In this way damage may result to the trees which are the permanent crop and the more valuable. Plants suitable for intercropping have been mentioned above. The inter-crop should not be planted too close to the trees and the area of unplanted ground should be extended each year as the trees become larger. The intercropping of bearing orchards should be discouraged.

Pruning.—There has been some divergence of opinion as to the amount of pruning that should be given to citrus trees, but the general tendency has been to prune very lightly or not at all but there should be some formative pruning in order to establish a strong framework that will enable the trees to carry a large crop of fruit.

When the budded plants are received from the nursery they should have had the head already formed but in cases where they have not the plant should be cut back at 30 to 36 inches above the ground and the cut painted over.

When the young shoots have grown out about four inches three to five should be chosen as main scaffold branches. They should be well distributed up and down and around the trunk. Very low heading of trees is not advisable because the pendulous habit of growth results in fruit being lost through contract with the ground. The only pruning that is necessary during the first year is to thin out unwanted shoots and remove any that are not suitably situated. When two branches arise at the same point or when two branches cross one another, one should be removed. Any fruits that develop during the first two years on the trees should be removed before they become large in order that the young tree may utilise all available plant nutrients for vegetative growth. Bearing trees require little or no pruning but sometimes a judicious light pruning is beneficial.

Diseased, injured, crossing or interfering branches should be removed. Any branches partially killed by insects should be cut away. In removing a branch it should be cut back to a lateral and no stub should ever be left, as stubs die back and form a source of entrance for wood-rotting organisms.

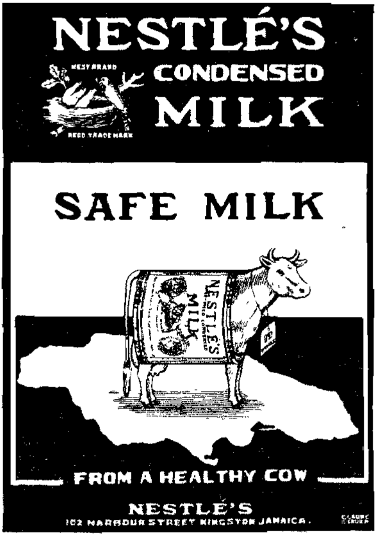
Spraying.—The control of insect pests is a problem that must be faced by every grower. Satisfactory methods of control have been evolved for most of the pests. Publications on spraying by the Department of Science and Agriculture should be read.

Cultivation.—It can be said that cultivation is beneficial in so far as it furthers one or more of the following objects:—(1) Preparation of land for sowing seeds of a green manuring crop; (2) The incorporation of fertilisers; (3) The preparation of the soil to receive moisture; (4) The destruction of weeds.

It has been said that under tropical conditions where there is a good rainfall cultivation of citrus is unnecessary, there being sufficient moisture present to supply the needs of the trees. Under moist conditions a large proportion of the roots are found in the upper six inches of soil and cultivation under such circumstances would be most injurious.

In orchards in dry areas it is advisable to grow green manuring crops during the rainy season for the purpose of a mulch during the dry season. A light cultivation is necessary when such crops are grown.

Windbreaks.—In all sections where prevailing winds are strong enough to interfere with the normal growth of the tree, windbreaks should be planted. If possible they should be planted before the orchard is set out. A large planting in a very windy district should be protected by several windbreaks. The windbreak should be planted about 40 feet away from the nearest row of trees. Should the roots of the trees used as a windbreak injure the first row of citrus, a two or three-foot trench dug about 10 feet away from the windbreak will stop the damage but this may have to be repeated after some years. As the different trees used for windbreak vary in their adaptability to the various districts it is well to make enquiries or observation to determine which tree is most successful for the lacality chosen for the citrus orchard.



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EDITORIAL COMMENTS.

The Co-operative Principle.—

Considerable discussion took place at the last meeting of the Board of Management of this Society, consequent to a resolution moved by Mr. T. R. Williams, reading as follows:—"That the Jamaica Agricultural Society declare its support of the co-operative movement in Jamaica."

More than one misapprehension appeared to have developed. One, *that the co-operative principle was the same as co-operative associations*, the other, that it was too important a question for the Board of Management as a body to deal with and therefore should be referred to a General Meeting of the Society. Yet another was that the Board represented a large body of non-co-operators and therefore there would be a distinct danger in committing the Society to any one side of the question.

The resolution was however, passed.

The matter, however, is of so much importance that we feel it our duty to do what we can to clarify the subject for the benefit of a large section of our reader-members who did not hear the discussions or possibly read of them.

First of all it should have been obvious that only the co-operative principle was intended by the resolution. It would have been manifestly improper and quite out of order for our Board of Management to have discussed any Co-operative Association or group of Associations.

Again co-operation as a principle is not necessarily confined to Producers' Associations nor are Producers' Associations always purely co-operative. We cannot entirely disregard the viewpoint that it might have been wiser to have referred the resolution to a General Meeting but only if in doing so it was done with the Board's blessing; for undoubtedly the rank and file of the Society's membership look to the Board for leadership and might even go the length of saying depend on the Board for leadership. We therefore feel that the opinion of the Board should at least be expressed; and we are happy it was. We cannot feel with any conviction that any large or important section of the Society's membership is in opposition to the co-operative principle. We pass no parallel opinion as regards co-operative associations, as such an opinion would be irrelevant to our subject, and so we feel that in passing the resolution our Board of Management need have no fears in the matter. We feel that the co-operative principle could be put into practice in Jamaica in many varied ways both large and small with much advantage to the community and we hope to influence members of our Society in this direction for their benefit.

We mention just a very few directions which come to mind as we write. Co-operative ownership of livestock sires would enable herd owners to afford better sires.

Co-operative ownership of the larger implements would permit of cheapening of production costs.

Co-operative irrigation development for farmers with acreage too small to permit of individual development would bring to such farmers benefits impossible otherwise.

Co-operative processing and packing of produce and sometimes shipping opens to us markets which are desired by the individual but which are unavailable due to inability to supply minimum economical shipping quantities; the vegetable export market for instance.

Co-operative purchasing of agricultural requisites such as fertilizers, seed, insecticides and fungicides, etc., are well established practices in other countries and appreciable economics are created thereby.

Co-operative credit facilities have become an important feature in the advancement of agricultural communities all over the world.

Co-operative marketing in these days of mass dealings is, of course, the big thing and undoubtedly must have its place in agricultural economics.

Government nowadays is really a supreme co-operative effort on the part of the people for the improvement, advancement and peace and happiness of themselves.

In discussing a principle it is sometimes unwise to discuss the details of its application. For instance, in co-operative ventures the absence of a purely democratic administration is usually thought to violate the co-operative principle. This is of course not the case. The democratic principle is that which is violated. But then this is not the subject under discussion.

The Dairy Industry.

We reproduce in the Correspondence Columns of this issue of our Journal, a letter which appeared in the Daily Gleaner of the 20th September from the pen of the Hon. Thos. Anderson, Custos of Manchester.

The letter is of interest as being an attack on the Editorial of our August issue on the Dairy Branch of the Livestock Industry of the Colony.

We are glad of the interest displayed in regard to the Editorial as undoubtedly our Dairy Industry is a very important matter for consideration and again it is even now being considered by a Special Committee set up by the Government to study the industry and to make such recommendations as their study may indicate for its improvement.

The Hon. gentleman's statement that our article is misleading is of itself misleading and it is for this very reason that we have thought it at all necessary to revert to a subject with which we have already exhaustively dealt.

First of all we indicated no "large profits." We showed that with efficiency 12% could be earned on the outlay. We do not consider 12% on an agricultural investment operated on a high plane of efficiency anything out of the ordinary.

Now if the highest standard of efficiency for dairy cows which the article took into account, i.e. the 4,000 lb. milker, is to be regarded in Jamaica as Utopian, it may be wiser to forget the industry. Indeed it would be more correct to say there is and can be no industry, but it is because the 4,000 lb. milker is to our certain knowledge an accomplished fact and not Utopian that we feel that the industry is well worth nurturing and so we have placed before the public the facts and our suggestion as to what in our humble opinion is the best method of assisting it. We, however, must draw attention to the fact that on page 475 of our article we pointed out that we realised that a start would have to be made with cows of much lower efficiency, mentioning a 2,080 lb. as we had not developed enough of the 4,000 lb. type cow, It is this necessity for a start with the cattle we have available that justifies assistance.

Now we have some very good, if not Utopian pasture lands, and on these beef cattle are not paying much profits, and our pasture management in the light of scientific study abroad can be improved. We are

not prepared to say whether the pasture lands of Manchester are recognized as of this class, but we have pasture lands capable of maintaining 200 milkers and 100 heifers of varying ages per 1,000 acres, and if we are wrong then we have no dairy lands.

The assertion is made that we have allowed nothing for sickness or death. Now this is very disappointing. We did not think we would have had to provide our work sheets to prove our figures, but if it helps we are willing to undertake anything that will contribute to the industry's welfare, for that was really the object of the Editorial. For one thing we allowed no revenue from bull calves. They must have all died. 100 heifers of differing ages would indicate approximately 40 yearlings, 30 two-year olds and 30 three-year olds. As stud mated dairy cattle should calve every year, even allowing for 20% misses on 200 head, still yet we would have 160 calves per annum. We have only taken into account 40 of these becoming yearlings. The death rate on calves at any rate could well be 100% of the male calves and 50% of the female calves and our figures would yet be undisturbed. We purposely did not try to make the proposition look too rosy. It will be seen that the term misleading is more deserved by our critic than the article criticised.

Now the question of what milk can be produced on grass alone can be settled by two assertions. One is that the modest yields used as being the Jamaican high efficiency mark are now being obtained in actual practice on at least two dairy farms in Jamaica, and the other is that it has been scientifically demonstrated abroad, both by feeding tests and analysis, that grass at its right stage, i.e., the younger stages, is the equal of concentrates for maintaining high milk production. Concentrated food is really a supplement for poor, innutritious grass.

This is where pasture management will tell. Our calculations are based obviously on averages of the herd and cows need not be psychologists at all as suggested. We only suggest that the dairyman stud mate his cattle and so arrange, taking opportunity of heats which is a natural provision, to ensure that his milking cows are served at around three months after their last calving. Running them with the bull might not do this but then it is surely not unreasonable to expect some management from the dairyman.

Our article was also criticised for allowing for £100 revenue from the by-products of pastures. We suggested logwood or pimento, or both. Allowing we even did refer to logwood alone, which we obviously did not, we see nothing unreasonable in expecting to get £1 over and above expenses on a ton of logwood and one-tenth of a ton per acre per annum from grass lands where logwood grows or from a combination of pimento and various minor items that the average cattle pasture can produce. These alleged over-estimates of ours are very much emphasised but we see no mention much less emphasis on that portion of our estimate reading "allowing for unforeseen expenditure or reduction of income lessening this figure by £200," which wipes out £200 of the criticised figures amounting to £300.

We are, of course, grateful to be told that pigs do not thrive on separated milk and grass alone, although we have experienced more useful information in the past. We accept the Hon. gentleman's figures of a necessary £800 gross sales of pigs which would represent around 400 finished pigs of good breeding—8 per week. We see nothing phenomenal, having the most important element of feed, skimmed milk, the protein part of the ration readily at hand and charged to the pigs at less than ½d. per lb. in the more easily procured foods, the starchy

foods, being provided for pigs at a profit. It is done everywhere else. Poor Jamaica. If the pig business is not liked, skimmed milk can be fed to bull calves but it will not prove as profitable.

We would have liked to have been in the Company promoting business but have always lacked what is vulgarly called the brass and feel that someone else has discovered a hitherto unrecognised asset of ours. We are of course flattered to be referred to as "Our leading agricultural paper" and as such will point out that the real awakening will not be to the suggested to be pitied prospective settler but to those unenterprising dairymen who will not increase efficiency when those few who already recognise the possibilities in expanding their production to the point whereby they can take care of the entire island needs at competitive prices and without intending it create a monopoly that will keep out the laggards.

We regret that we have no suggestion from our critic as to the measures he would suggest for assistance to the industry.

After all this much ado about nothing our readers must not lose sight of the fact that the aims of the Hon. Custos and those of this Journal are identical, i.e. the preservation and building up of our Dairy Industry in Jamaica.

FARMERS' CO-OPERATIVE MOVEMENT.

National Organisation Proposed.

Bloemfontein, August 16.

A conference of delegates from 30 agricultural co-operative organisations in South Africa has endorsed unanimously in principle the formation of a national co-operative body.

Legal institutional difficulties prevent the immediate foundation of this body, but a committee appointed to surmount the difficulties will call another conference at which a national organisation will be established. The movement aims at the co-ordination of existing co-operative organisations. It proposes to give farmers complete control of the marketing of their produce so as to withstand political "interference."
—"The Times."

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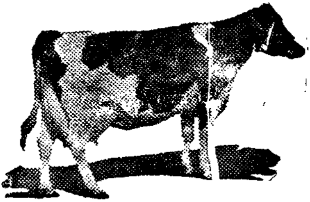

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COCONUT HUSK ASH AS A FERTILISER.

By H. H. Croucher, Agricultural Chemist, and R. S. Martinez, Superintendent of Agriculture.

Many millions of coconut husks are burnt annually in Jamaica, but not every planter appreciates that in the residual ash he has a substance that may be of considerable value to him. The value of the ash assumes even greater importance now it is known through determinations made during the past two years that many Jamaica soils are deficient in Potash. Furthermore, two of the main crops of the island, namely, the coconut itself and the banana, make heavy demands on the available potash in the soil. The ash that is often thrown away contains a considerable amount of potash. Analysis shows that the normal content of available potash varies between ten and twenty-five per cent. The chemical fertiliser, Sulphate of Potash contains about 48 per cent. of available potash. The ash may therefore be anything between quarter and a half as valuable to the soil as Sulphate of Potash.

The composition and value of the ash will vary according to the conditions under which the husks are grown, and the method by which they are burnt. The first factor is of secondary importance, in that the average planter has no choice as to the source of his husks. The best method for preparing the ash is to burn the husk in heaps in the normal way. The lower the temperature of firing, the richer in potash is the ash likely to be. The ash obtained from husks burnt in a furnace, therefore, is likely to be poorer in potash than that obtained from a slow burning heap of husks. It is essential to keep the ash dry while it is being stored. The potash is readily soluble and can easily be washed out of the ash.

Disadvantages of Ash Application.

The use of ash has two possible disadvantages as a source of potash. The main disadvantage is that coconut ash contains soda ash in addition to potash. The effect of the application of soda to a heavy clay soil is to tend to bind the clay, give it a soapy texture, and generally to impair the tilth of the soil. On a light soil, this effect will not be great. Care should be exercised therefore in applying large quantities of coconut ash to heavy soils.

The second disadvantage of coconut ash is that it contains a considerable proportion of chloride or common salt. Chloride is toxic to certain plants. The amount of chloride in the ash will vary with distance from the sea at which the original husk was grown. The ash from husks grown on the seaside may contain as much as twenty per cent. of common salt.

Citrus is particularly susceptible to chloride, and therefore the ash should not be used for manuring citrus trees. Bananas are moderately susceptible, but it is not known whether the addition of the chloride in coconut ash applied in small quantities would be sufficient to affect them adversely. Care should be exercised in applying ash to bananas and if large dressings of potash are required, it would be advisable to apply only a portion of the potash as coconut ash, and the remainder as Sulphate of Potash. Coconuts require the addition of chloride and thus the ash is an ideal source of potash for them. Sugar cane can withstand considerable quantities of chloride, and therefore unless the heavier sugar cane soil is adversely affected as has been suggested in the preceding paragraph, coconut ash can be used freely as a source of potash.

Mixing with Other Fertilisers.

It is unwise to mix coconut ash with any fertiliser containing ammonia. The alkali of the ash and the ammonia salt react with the liberation and loss of ammonia. The chief ammonia-containing fertilisers are Sulphate of Ammonia, Nieiphos and Ammophos, and most ready-mixed fertilisers.

It has been a practice among some planters to mix coconut ash with ammonia-containing fertilisers. It was appreciated that some loss was sustained, but the extent and value of that loss was unknown. A small experiment has therefore been performed at the Agricultural Chemistry Laboratory, Hope, to ascertain the loss of ammonia resulting from a mixture of ash and a fertiliser containing ammonia.

Fresh dry coconut ash kindly supplied by a planter and Sulphate of Ammonia were used for the experiment. The analysis of the ash was as follows:—

Total potash	31.28	per cent.
Total lime	7.87	"
Total common salt	22.53	"
Carbonic acid	9.50	"
Moisture	7.24	"
Unburnt material	12.12	"
Residual material	9.46	"

Two parts by weight of ash were thoroughly mixed with one part by weight of Sulphate of Ammonia. The mixture was analysed carefully and divided into three portions which were treated in the following ways:—

Portion 1 was kept in a bag for five days.

Portion 2 was spread dry on a tray and exposed to the sun for five days.

Portion 3 was carefully damped, spread in the air for three days, and then dried in the sun for two days.

The treatment given to portion 1 represents the usual conditions under which such a mixture would be stored. The treatment of portion 2 represents the effect of applying the manure to dry soil, or of storing it unbagged. The treatment of portion 3 represents the effect of applying the mixture to the damp soil, or the effect of dew or a shower of rain on the mixture, or the effect of mixing damp ash with an ammonia-containing fertiliser. After the period of five days, the amount of ammonia left in each portion of the mixture was determined, and by calculation the actual loss of ammonia under the various treatments ascertained. All results were reduced to percentages of Sulphate of Ammonia. The results were as follows:—

Treatment.	Original content of Sulp. of Amm. per 100 gr. of Mixture.	Final content of Sulp. of Amm. after 5 days.	Loss of Sulp. of Amm. per 100 gr. of Mixture.
1. Stored dry	34.75	33.0	1.75
2. Exposed dry ..	34.75	20.80	13.95
3. Exposed moist ..	26.95	4.58 *	22.32

* Calculated on basis of original moist mixture.

The results of the experiment are illuminating. They show that under storage conditions the loss of Sulphate of Ammonia is not great, as long as the ash is initially dry, and the mixture is kept dry. Under bulk storage conditions, the loss may be even less than that obtained in the experiment. Immediately the mixture is spread, for example on dry soil, and exposed to the sun, the loss increases to the extent that nearly one half of the Sulphate of Ammonia is lost in five days.

If the mixture becomes moist by contact with a moist soil, or through dew or a light shower, over eighty per cent. of the Sulphate of Ammonia may be lost in the five days, even though the sun shines on the fourth day. The loss on a ton of Sulphate of Ammonia in this short period under these last conditions, represent a monetary value of over £6 10s. 0d. Niciphos and Ammophos would behave in much the same way as Sulphate of Ammonia.

It is assumed in the experiment that the mixture is spread on the surface of the ground. The loss would be reduced if the manure were turned into the soil immediately after spreading. Even so, the loss occasioned during mixing, during the transference of the manure from bag to tray, during the time it is on the surface of the soil before turning in, possibly under moist conditions, and after it has been turned into the soil, must amount to an appreciable quantity.

The only safe method of applying both ammonia-containing manures and coconut ash, is to apply the ammonia-containing manure separately first, and to apply the ash only after the lapse of a week or two, or after the first heavy shower of rain.

All other common fertilisers not containing ammonia such as Nitrate of Soda, Superphosphate, Rock Phosphate, Sulphate and Muriate of Potash may be mixed with coconut ash.

The loss and waste of plant food occurring in tropical countries have been frequently emphasised in Jamaica. Potash in a concentrated form may become more difficult to obtain in the future. Jamaica with her present crops certainly will always require large supplies. The careful use of coconut ash provides one of the methods of minimising the waste of this all-important plant food, besides affording a method of saving expenditure on artificial fertilisers.

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PESTS OF CITRUS IN JAMAICA.

We again have the pleasure of publ'shing another address by Mr. W. H. Edwar's, D.I.C., F.E.S., Government Entomologist and Acting Government Microbiologist, of the series that he delivered during the Summer Course of the Department of Science and Agric ilture at Hope during July this year. Such an address is very opportune as thousan s of farmers, large an l small, have embarked or are about to emb irk on the stablishment of citrus orchards in Jamaica.

Popular knowle lge of citrus culture is of a very limited nature and the value of a lecture of this kin l at this time especially cannot be overrate l. What is reproduced is a verbatim report of the lecture, and we strongly advise those of our rea lers interested in citrus to file this number of the Journal carefully away so that the article can be used continuously for reference when required.

Editor.

Though there does not exist in Jamaica any of those very destructive pests which in other countries have attained notoriety on account of the wholes le depredations they cause, citrus suffers in this island from the attac s of a large number of pests.

The cumulative effects of their attacks on grapefruit and oranges is usually of very great economic significance to the growers.

The more destructive insects which attack citrus in this island are:

1. *The Scale insects* which by sucking the sap of the plants reduce their vitality.

They also diminish the marketing value of the fruits they infest.

Amongst the scale insects (which for the sake of brevity we shall deal with as a group):

The Green scale (Coccus viridis)
The Purple scale (Lepi losaphes beckii, Newm.) and
The Florida Red scale (Chrysomphalus aonidum.) L. are the more destructive.

The other species which are:
The Green-house Orthezia; Orthezia insignis, Dougl.
The Citrus Mealy bug: Pseu lococcus citri, Risso.
The Mealy Shield scale: Pulvinaria psidii, Mask.
The Japanese or Mexican wax scale: Ceroplastes ceriferus
The Soft Brown scale: Coccus hesperidum, L.
The Hemispherical scale: Saissetia hemispherica, Targ.
The Black scale: Saissetia oleae, Bern.
The Snow scale: Chionaspis citri, Comst.
The West Indian Red scale: Selenaspidus articulatus, Morg.
The California Red scale: Chrysomphalus aurantii, Mask.
The Chaff scale: Parlatoria pergan lii, Comst.
The Black Parlatoria: Parlatoria ziziphus, Luc.

are usually of lesser importance than the three first mentioned.

2. *The Fiddler Beetles* or Root grubs:

Prepodes vittatus and
Pachnaeus litus, Germar.

which destroy the radicular system of the plants.

3. *The Citrus Black Fly:* Aleurocanthus woglumi, Ashby which sucks the sap from the leaves and causes the growth of sooty moulds on the leaves as well as on the rind of the fruit.

4. *Ants*, which either causes injury to the plants by chewing the bark and tender tissues of young shoots or foster and disseminate Scale insects on the trees.
5. *Aphids* or Plant lice, which cause the dwarfing of young shoots.
6. *Thrips*, which attack the blossoms, foliage and fruits.
7. *The Rust Mite:* Eriopes oleivorus Ashm. which cause scars on the rind of fruits and also injure the leaves.
8. Red Spiders: Tetranychus sp. whose damages are similar to the above.
9. Leaf Eating Caterpillars such as:
   (a) The Orange Dogs: Papilio cresphontes and Papilio pelaeus.
   (b) *The Bag Worm: Oiketicus abbotii*
10. *The Green Bug* or Stink Bug: Nezara viridula which causes the wilting of young shoots and of buds.
11. Slugs which defoliate the trees.

As many of you are going to launch yourselves for the first time in commercial citrus growing by, we hope, planting large numbers of the budded plants of standard varieties which the Department of Agriculture is at present offering to prospective growers, I wish to call your attention to the fact that citrus is not one of those crops that we are used to leave entirely to the care of Nature and that for your venture to prove a success it is essential that you should realize that systematic treatment of the crop against pests and diseases will have to become a regular practice.

Whilst application of insecticides and fungicides to control insect pests and diseases becomes *easy and economical in regularly planted groves* where the trees are easily accessible, treatment becomes unremunerative where the trees grow in a semi-wild state scattered over extensive areas of pasture lands or amongst thick growth of rank vegetation, a state of affairs which with few exceptions is at present unfortunately of general occurrence in the island.

I also wish to call your attention on the fact that the cost of treatment of a tree with an insecticide remains practically constant whether the tree bears a good or a bad crop. The amount spent on pest control is therefore relatively small where high yields of fruits of good quality are obtained but become onerous where only fruits fetching low prices are obtained and where the yeld per tree is small.

The importance: of:

(a) *Planting varieties which fetch the best prices.*
(b) *Of raising the general standard of cultivation to increase average yields* and
(c) Laying *regular groves* so that methods for *controlling pests and diseases* can be economically applied, is therefore of the greatest importance for the success of the citrus industry which is being built up in this colony.

When dealing with insect pests and especially with those which in this island attack citrus, one should also always keep in mind the old saying "A stitch in time saves nine." It happens too frequently that advice is asked and measures of control applied when most of the damage has already been done or after the pest has reproduced itself in such numbers that its destruction has become difficult and expensive.

Citrus growers, especially those far from Kingston, should therefore, always keep in stock a small stock of insecticides for current uses and see that their spray pump, etc., are always in working order. In other words, growers should keep prepared to deal with the insect enemies

which are likely to infest their crop and this as soon as the first signs of infestation are noticed in the groves.

1. Scale Insects or Coccidae.

The popular name of 'scale insects' was originally given to the Coccidae on account of the shell-like coverings which in many species conceals the body of the minute insects which lie underneath.

These coverings are secreted or otherwise formed by the insects themselves; being impervious to water and adhering by the edges to the vegetation, they afford excellent protection to the delicate insect lying underneath.

The species which have resistant horny or waxy coverings are very difficult to destroy by means of liquid insecticides unless great care is taken in the kind and method of application of the spray as well as to the stage of evolution of the pest itself when the insecticide is applied. Methods for the application of poisonous gases have also been devised to control these pests on the field scale.

Distributed all over the world, scale insects are amongst the most destructive enemies of plants. In Jamaica several species do considerable damage to citrus and to other fruit trees as well as to most cultivated plants.

One of the most curious characteristics of scale insects is the peculiar mode of development of the females; this has an important bearing on the spread of those pests also on the methods to be applied for their control.

The adult females do not, as is the case in most other insects, possess wings or even legs. They therefore can only move about when they are still very young as during that period they possess legs which enable them to crawl from one plant to another. Once they have reached a favourable spot on the plant they moult and lose their legs entirely leading henceforth, fixed by their mouth parts introduced deeply into the tissues of the food plant, a stationary and vegetative life, merely feeding and producing enormous numbers of young.

Unlike the female, the males of Coccids undergo a progressive development. The adults are minute winged fly-like beings which have no mouth and do not feed during their short existence as adults. The males merely fly about to fertilize the stationary females.

In many species there are no males or only very few, the females are then parthenogenetic, i.e. they can produce youngs without mating.

An important point in connection with scale insects as they affect citrus in Jamaica is that those pests are affected in a very pronounced manner by climatic conditions. Whilst in the low-lands where the climate is dry, citrus trees are frequently very seriously affected, at high altitudes where dew is heavy and wherever the climate is wet the trees, though no means of control are applied, remain practically free from heavy infestations. This phenomenon is very largely due to entomophagous fungi.

Growers in many parts of the island thus enjoy a very great advantage over the competitors from other countries where scale insects are usually very destructive.

As infestation of trees by scale insects also depends largely on the state of health of the plants themselves, it is advisable for that reason, as well as for many others, to keep trees in a healthy condition. In many cases the raising of the standard of cultivation has a very important bearing on the problem of scale control.

Necessity of controlling Scale Insects in Citrus Groves.

As aforesaid, scale insects as a group may be considered the most destructive parasites which attack our citrus trees.

On account of the insiduous nature of the damage they cause and of the fact that the insects themselves are usually very inconspicuous, the necessity of controlling those pests has not yet forced itself upon the attention of the majority of our planters.

Spraying with insecticides is being gradually adopted by our fruit growers and is already practiced in a systematic and rational manner by the more progressive ones, but there is yet much to be done before the control of scale insects will have become a regular agricultural practice in the citrus groves of Jamaica.

In many parts of the island where climatic and other environmental conditions are favourable to the multiplication of scale insects, whenever these pests are left uncontrolled, their depredations render the economic production of citrus fruits unprofitable.

Those insects by sucking the sap of the plants and by injecting toxic substances in their tissues reduce the vitality of the trees, which when heavily infested yield much smaller crops than would otherwise be obtained.

Trees weakened by these parasites not only become more susceptible to their attacks but also lose their resistance towards other pests and diseases.

Apart from the diminution in yield, scale insects by infesting the fruits, produce on the rind blemishes and scars which spoil the general appearance of the fruits thus diminishing their market value however good the flavour inside may be.

We must, in Jamaica, keep in mind that the public buys mainly on appearance and that to compete successfully on foreign markets with citrus producers from other countries we must produce fruits which look clean and healthy.

Considerable trouble is taken and heavy expenses incurred by local shippers of citrus fruits, in cleaning the fruits they handle from scale insects. Primarily on account of the restrictions put by importing countries (whose plant inspection services would not allow the landing of scale infested fruits on their territory) we always have to insist on complete removal of all scales on fruits for export.

On such occasions it is always a subject of concern to notice that if some of the trouble taken in packing houses for cleaning fruits from scales was taken by the growers in the fields to control the pests on the trees, total expenses incurred with regards to those pests would not be greater, whilst much heavier crops of excellent fruits would be produced. The heavy rejections of scarred fruits which also occur through abrasions of the rind when cleaning the fruits from scales, would simultaneously be materially reduced.

Spraying against Scale Insects.

Scale insects can be effectively controlled by spraying with insecticides which kill by contact. These may be roughly grouped into the oil sprays and the sulphur sprays.

Many such insecticides of proved efficiency exist on the local market. As it would not be possible to discuss their respective merits in the time available and as in an island like Jamaica, climatic conditions are so variable and the species of scales necessitating measures of control so

diverse, it is not possible to lay hard and fast rules as to what spray should be preferred, this subject will be left for discussion on a latter occasion.

We sometimes hear growers saying that they cannot control scale insects by spraying. Wherever spraying has been reported to me as not giving statisfactory results, I have found that the reason was not to be ascribed to the quality of the insecticide but to the way in which it had been applied.

As a rule the spraying apparatus used by inexperienced growers is completely unsuitable for the application of insecticides under high pressure. Those in charge of the operation, moreover neglect supervision and knowing nothing about spraying leave the application of the insecticide to untrained labourers who, one can say without exaggeration, take and use a spraying machine as a sort of water-can which pours the liquid on the branches of the trees.

I remain at your entire disposal for examining any specimens you may care to collect from your plants and submit to me and to advise you on the methods of control that would be most suitable in particular cases.

As aforesaid we shall not discuss at present the merits of the various insecticides which are now on the market, but the mode of preparation and of application of two excellent spray liquids for controlling scale insects, will be described at the end of this lecture.

Before leaving that subject to deal with some of the other insect enemies of citrus crops, I would like to call your attention on the necessity of selecting carefully the instrument which you will use for the application of insecticides.

Choice of the Instrument.

Save time and labour by acquiring from the start a good instrument.

Good spraying cannot be done without a good outfit. Do not economise on the initial outlay when buying a spray outfit. To spray with a bad instrument is ineffective and uneconomical. The size of the sprayer required depends upon the area of your groves and on the size of the trees.

It does not pay to acquire a small sprayer which has to be constantly refilled.

It is much easier to do a good job with a strongly built machine than with an instrument of poor quality which leaks or from which the necessary pressure cannot be obtained.

The type of instrument which it is advisable to secure will vary according to the accessibility of the trees, etc. For obvious reasons I cannot recommend any particular make but I advise intending purchasers to inspect the instruments I have in my laboratory and to make enquiry amongst citrus growers who already possess spraying outfits before you make your choice.

II. Two Weevils whose Larvae attack the roots of Citrus Plants in Jamaica.

Two kinds of weevils are commonly found all over Jamaica feeding on the foliage of citrus trees.

The one commonly known as the Large Fiddler Beetle, Prepodes vittatus, measures from three to five fifths of an inch in length. It is easily recognised by the red and pale green stripes which running

lengthwise along the wing covers, adorn the upper part of their black coloured body.

The Small Fiddler Beetle, Pachnaeus litus, Germar., is much smaller in size, seldom measuring more than five-eighths of an inch in length. The whole body of those brilliantly coloured weevils is light blue or bluish green.

Though the adults of those insects cause a certain amount of damage by feeding on the foliage and flowers of the plants and also by chewing the epidermis of young fruits (such lesions resulting in unsightly rind scars when the fruits mature) the most serious injuries are not done by the adults but by the grubs which destroy the roots of the plants.

The life cycle of those insects comprises four stages:

1. the egg,
2. the larva,
3. the pupa or chrysalis, and
4. the adults or beetles.

The larvae are those white plump legless grubs which are frequently found in the soil amongst the roots of citrus plants; they feed *on the bark of the roots* and also attack the stems of young plants just *below the surface of the ground.*

These grubs, by eating strips of bark from the roots, may when numerous, girdle completely the main roots with the result that the flow of sap to the higher parts of the plants becomes arrested.

The leaves of plants thus injured assume a chlorotic appearance, turn yellow and wilt. When the trees are still young the result of the attack may become rapidly disastrous, the plants being killed in a short time. With milder infestation their growth become so retarded that they assume a dwarfed and anaemic appearance.

Older trees having a well developed radicular system resist such attacks better, though they generally show symptoms of poor growth and yield little.

The damage caused by the larvae is however, much more difficult to detect than that caused by the adults and generally remains unnoticed until it has progressed so far that the infested trees in cases of severe infestation begin to 'die-back.'

Remedial Measures:

When the adults of those insects are found in numbers in a grove or whenever trees begin to show signs of being attacked, measures should immediately be taken to control the multiplication of the pest.

Hand Collection of the Adults:

As the beetles are during the first five months of the year found in numbers on the foliage of the trees, they should be systematically collected and destroyed. This will prevent future severe infestation by the grubs.

When labour has been trained for the task, hand collection of the weevils hanging to the leaves of the trees is a cheap and effective method of control. On young trees this can be done very easily.

When the trees are tall or have a thick foliage, the insects can frequently be collected 'en masse' by spreading a large piece of cloth under the trees and afterwards shaking the foliage. As the weevils hang but very little to the leaves they fall on the cloth and can thus be picked up in numbers.

Fumigation with Cyanogas:

Whenever searches amongst the radicular system of trees reveal the presence of the grubs, fumigation of the soil around infested plants will

have to be made and I recommend for this purpose Cyanogas at the rate of $1\frac{1}{2}$ to $2\frac{1}{2}$ ozs. per tree according to the degree of infestation.

Paradichlor-benzene as a Deterrent:

In those patches found more heavily infested by the adults, as a deterrent against the grubs that will soon begin to hatch in numbers, Paradichlor-benzene can be applied as follows:—

> The surface of the soil around the base of the trees is removed and the insecticide which is a powder is sprinkled at the rate of 1 oz. per tree in a continuous band 4 inches from the trunk; a layer of soil about 4 inches thick is then thrown over the insecticide and packed with a shovel.

III. The Citrus Black Fly.

The citrus black fly was accidentally introduced in this island over twenty years ago on mango plants imported from the East. As in those days systematic inspections of imported plants had not yet been instituted, the pest established itself unhindered on the Liguanea Plains and from there spread rapidly all over the island.

Since that time and until recently it was responsible for considerable losses to agriculturists, attacking not only citrus but coffee, mangoes, ackees, breadfruit and very many other economic and ornamental plants. With regard to citrus crops that pest had become a serious factor as regards yield, size and appearance of the fruits.

The pest on account of its great prolificity, of the short period during which it completes its life cycle and especially on account of the large variety of plants on which it lives was most difficult to control by means of insecticides. Fortunately it has now become practically exterminated by a parasitic wasp of minute size which was recently introduced in Jamaica to combat the Black Fly by natural means.

If we now mention that pest it is because:

(a) It may still exist in destructive numbers where its enemy has not yet been introduced or has not yet spread itself by natural means.

It is needless to say that in such cases I shall be only too glad to furnish hundreds of those little creatures to whoever proves that the needs them.

(b) Because where the wasp has become established you will still *occasionally* find Black Flies on the leaves of the trees and I want to explain to you why this occurs.

The laws of Nature provide that an organism which lives at the expense of another organism can never completely destroy its food supply, it would otherwise become itself annihilated by starvation. What occurs in the case under consideration is this, the wasps when first introduced in a locality find an abundance of Black Fly to live on. They then reproduce themselves in great numbers and consume the Black Flies at such a rate, that these become so scarce that the wasp population diminishes rapidly by lack of food. The Black Fly which have escaped destruction being no more confronted by an important army of their natural enemies in their turn take an advance on the wasps and produce a mild infestation on the trees. These new generations, however, become rapidly destroyed by the offsprings of the wasps which soon reappear in numbers.

The action of the wasps have, up to the present, proved so effective that wherever it has been established such secondary infestation of Black Flies have always been of short duration, not serious enough to cause material damage; in other words the biological balance now

established between the Black Fly and its natural enemies is such that the pest is already under complete economic control in most parts of the island.

The economic result that the introduction of that useful insect has had in Jamaica is difficult to express in terms of money on account of the great diversity of cultivated and also of uncultivated crops which have benefited thereby.

For those, however, who remember the consignments of citrus fruits received at the packing house covered with black moulds and the outbreaks of the pest in coffee and citrus cultivations as well as on most of the food plants cultivated by small planters, there is ample reason to feel that the success of the introduction is very gratifying.

(c) The third reason which makes me speak about that defunct enemy, is that its accidental introduction in the island remains a striking example of the folly of not taking the greatest precautions to eliminate every chance of introducing destructive though frequently inconspicuous pests when plants are imported in a country.

It shows the greatest necessity for the plant inspection and disinfection service which exists. In spite of the inconveniences which the control of importation of plants may cause to the public, it fulfils a very useful purpose. The infringement of those regulations might lead to such disastrous results that I shall again ask and most earnestly, your collaboration in never undertaking in spite of the greatest temptation to smuggle the smallest bud or cutting of plants when you return from holidays spent abroad. On account of the disasters that may ensue for our agricultural undertaking by the introduction of new pests, you should also courageously denounce any one you happen to know attempting to infringe the plant quarantine regulations.

Ants in Citrus Groves.

In Jamaica ants do much damage to citrus (1) by gnawing away the tender bark of young shoots and the succulent tissues of sprouting buds (2) by fostering and spreading from tree to tree various pests amongst which is the common and destructive Green scale (3) when the rind of ripening fruits and especially of oranges are injured by wind, ants penetrate through the ruptured oil cells into the rind. Feeding on the cellulosic tissues of the rind they bore narrow galleries which sometimes reaches the central part of the fruit between the carpels.

To apply judiciously and thereby successfully measures aimed at the destruction of ants it is necessary to know certain essential points about the peculiarities of their life history.

Ants live in colonies, each nest or formicary contains from one to several females or queens who lay the eggs and of thousands of workers of different kinds or castes, each caste performing well defined duties.

The queens are cared for by the workers and usually remain inside the nest, seldom leaving it except when the colony migrates to a new location.

At varying times of the year, depending on the species and also on the climatic conditions prevailing at the time, winged males and females leave the nest and swarm to form new colonies. After mating the males die whilst the fertilized young females which had left the maternal nest search for suitable situations to build new formicaries.

From the first eggs laid by those females, larvae are hatched which the young mother feed until they become full grown. These first

larvae develop into workers which as soon as they are old enough begin to take part in the building of the new colony.

They collect food for the younger larvae and for the mother which from now on does no more work but spends the rest of her life as an egg-laying queen. Her life may extend over several years, during which she lays thousands of eggs from which emerge workers as well as other males and females.

As ants rebuild easily their nests when these are broken and as each female is continuously laying large numbers of eggs to replace the individuals which die, it is obvious that the destruction of wandering workers or the breaking of nests does little to check such prolific insects.

To control ants it is therefore *essential to destroy the queens*, to do this the nests have first to be located as explained hereunder.

For the purpose of applying measures of control against the species which infest our citrus groves, ants can be conveniently grouped as:

(1) the soil inhabiting species.

(2) those which build their nests on the trunk and branches of the trees.

I. The Soil inhabiting Species.

Amongst those which nest underground the most destructive species is the Fire Ant, Solenopsis geminata. A single nest of those ants in a garden or a small citrus nursery is often the cause of much trouble and losses as the pest is able, in a short time, to spread the Green scales and other pests on a considerable number of plants and also to nip off sprouting buds or gnaw the bark from the stems of the young plants.

Though the nest is hidden in the soil the situation can usually be easily traced by following the direction of the conspicuous tracts which run on the surface of the ground to converge towards the formicary. Another convenient method of detecting the nests of such ants is to lay on the ground attractive baits, such as bones of beef, fowl or fish or honey and observing the direction taken by the ants carrying provisions to the nests.

Destruction of Ants which nest in the Ground

A. By the use of Hot Water or by means of liquid Insecticides.

Once the formicary is found it should be destroyed. If it is situated on a bare plot of ground away from the radicular system of the citrus trees, it can be easily and cheaply destroyed by pouring *ad libitum* boiling water into it.

Under similar circumstances, a solution of Cyanide of Potassium (prepared by dissolving one ounce of the chemical in one gallon of water) poured into the nest until the ground is saturated, is very efficient.

To destroy formicaries situated near growing trees, excellent results will be obtained by the use of a diluted Soap-Kerosene-Creoline or Jeyes emulsion, which does not injure the plants.

The stock emulsion which can be preserved for a long time, is prepared as follows:—

Soap (Ordinary hard soap)	75 grams.
Kerosene	1 litre
Water	½ litre
Creoline	¾ litre.

The soap is first dissolved in boiling water, the kerosene is then gradually added, a little at a time, churning violently all the while with a paddle or large spoon until a creamy liquid results. The

creoline which can be replaced by an equal amount of Crude Carbolic Acid or of Jeyes fluid, is then added and the whole mixed.

For use, one part of this stock emulsion is diluted in 100 parts of water.

To destroy an ant's nest with any of the liquid mentioned above it is important first of all to pour the hot water or the insecticide in a circle around the formicary. When the soil at the periphery of the nest has been thoroughly soaked and all exit for the brood thus closed, a few water cans of the liquid is poured in the centre of the nest where the queens and the young broods live.

By Fumigation.

By injecting in formicaries substances which emit poisonous gasses or fumes which diffuse in the galleries and cells of the nest an ant community can be rapidly destroyed.

When there are no economic plants in the immediate vicinity of the formicary, *Carbon Bisulphide* can be used for the purpose. That insecticide is applied by punching into the soil, in and about the nest, holes 8 to 12 inches deep and about the same distance apart; about one tablespoonful of Carbon Bisulphide is then poured into each hole and the openings immediately afterwards choked with handfuls of moist earth.

Caution:—As Carbon Bisulphide presents the disadvantage of forming in the presence of air a highly inflammable and explosive mixture, care must be taken not to light a cigarette or approach a light where this chemical is stored or being used.

Calcium Cyanide in the dust form can be advantageously used for the destruction of ants nesting in the ground; it has the advantage to be less toxic to plant life than Carbon Bisulphide.

Holes are punched in the nest as explained for Carbon Bisulphide and about half a teaspoonful of Calcium Cyanide is poured into each hole, the entrance of which is then closed with soil or dirt.

II. The Arboreal Species.

The conspicuous black cartoon-mache nests which are commonly found all over the island on the branches of citrus trees are the formicaries of those arboreal species of ants which abound in our woodlands and on shade trees over pastures. They are the Common 'Black Ants' (Cremastogaster sps.) and the Dougal Campbell Ants, (Cremastogaster brevispinosa var minutor). The situation and size of their nests on the branches of trees render their presence easily detected.

As the formicaries of those species can be easily found and treated in their entirety, the eradication of those ants in cultivated orchards is, when compared with the other species of ants which nest in the ground, comparatively easy.

To achieve rapid success in that undertaking, the destruction of all the nests in and around the orchards should, however, be carried out simultaneously. As the smaller formicaries, i.e., those which are just being built up, are not easily detected when they are situated in the forks of branches, a reasonable amount of perseverance and of thoroughness is essential in the application of the measures of control.

The Dougal Campbell Ants vs the Black Flies and Green Scale.

The abovementioned arboreal species should be ruthlessly eradicated from citrus groves as the beneficial action which they are supposed to play in destroying Black Flies is greatly counterbalanced by the fact that they foster and disseminate the Green scale and other pests on the trees.

Several citrus growers purposely allow the Dougal Campbell Ants to breed in their groves and disseminate them by attaching large pieces of the nests to the branches of citrus trees. It is held that when the trees are well infested by those ants they do not become heavily infested by the Citrus Black Fly and that their foliage have a cleaner and healthier appearance than those of trees on which the ants' nests do not exist.

By visiting groves where ants are thus purposely bred, the claims of the adepts of Black Fly control by means of ants appear at first sight fully justified. A closer examination of the case however, soon reveals that this is not the case.

The cleaner appearance of the ant infested trees as compared with the other trees is due:

(1) to the absence or scarcity of '*sooty moulds*' on the leaves
(2) to the relative scarcity of Black Flies.

The absence of sooty moulds being really the main reason for the healthy appearance of the trees, we shall discuss briefly what 'sooty moulds' are and the role they play with regards to the health of the trees.

'Sooty moulds' are miscroscopic fungi that breed on the films of sugary liquid formed on the surface of leaves on which 'honey dew' has fallen. 'Honey dew' are the excretions of those insects such as certain species of 'scales,' Black Flies or Aphids which commonly infest citrus plants.

Those unsightly black moulds are not parasitic on the plants on which they grow, they merely cover the epidermis where honey dew has fallen but do not penetrate the tissues which support their growth. The deleterious action they play, is merely that when in abundance they choke many pores on the epidermis of the leaves and thus somewhat hinder the plant's respiration; they also when on the rind of the fruits spoil their appearance.

The Dougal Campbell Ants feeding greedily on the honey dew secreted by several citrus pests, prevent the formation of films of sugary substances on the leaves and thereby the growth of sooty moulds. Their main beneficial action consists therefore, in preventing an unsightly symptom of insect infestation. On the other hand, however, they foster at the same time the pests themselves and chiefly the Green scales so as to obtain more honey dew.

Like the ground inhabiting species all arboreal ants should therefore be systematically eradicated from citrus groves.

Destruction of Ants' Nests situated on the Trunk or Branches of Trees.

The Arboreal Black Ants can be effectively controlled by fumigating at regular intervals all the nests that can be detected in, and in the immediate vicinity of the groves.

Those can be easily and very economically done by pouring into holes, punched with a pointed stick into the nests one or several tablespoonfuls (according to the size of the nests) of Calcium Cyanide powder

and then wrapping the nest and the part of the branch on which the nest is situated with a piece of cloth impervious to gases.

N.B.—A piece of thick calico previously soaked in raw linseed oil which has been allowed to dry will answer the purpose

After from five to ten minutes the poisonous gas evolved from the Calcium Cyanide powder will have destroyed all the adults and young larvae in the nests so treated.

The impervious piece of cloth is then removed from over the treated nests and placed on aother. The fumigated nests are immediately afterwards scraped from over the branch and the bark which usually starts to decay, is painted with coal-tar.

By working with several pieces of cloth and simultaneously on several nests, treatment of extensive acres can be rapidly and economically carried out.

Caution:—Calcium Cyanide must be handled with great care as the gas evolved from the powder when put in contact with atmospheric humidity is Hydrocyanic Acid a most deadly poison to human beings and animals.

When opening the tins in which the commercial product generally used for such fumigation and which is known under the trade name of Cyanogas, is contained, the directions on the labels should be strictly followed and when the insecticide is applied the operator should stand on the windward side of the nests under treatment.

Cyanogas can be obtained locally from the Agricultrual Society, 11 North Parade, Kingston and also from Messrs. Bryden & Evelyn, *King Street* or from *Kinkead's, King Street, Kingston.*

Protection of Budded Trees from attacks by Ants:

Ants can be prevented from reaching the higher parts of trees by wrapping around the trunk at a height of about a foot above ground, bands of grease proof paper or of cellophane smeared with a substance repellent to those insects.

Several such excellent preparations are manufactured. As the prices at which they are sold are however sometimes prohibitive, growers may prefer to prepare their own mixture.

Rosin-Linseed Oil-Castor Oil ant repellent for Grease Banding Trees.:

A cheap non-poisonous preparation which keeps its adhesiveness over relatively long periods can be prepared by dissolving about 2 lbs. ordinary rosin in two litres of boiling castor oil and raw linseed oil mixed in equal parts. When the mixture has been well boiled air is blown through the hot solution until it cools to atmospheric temperature.

The preparation is then smeared on bands of paper tied around the trees in bands three to four inches wide.

Poisoned Castor Oil preparation.

Melt ½lb. of commercial rosin in ½ litre of hot castor oil. While the mixture is cooling add a little at a time whilst mixing thoroughly, 2 ozs. of finely powdered Mercuric Chloride.

This mixture is more effective than the preceding one but it presents the disadvantages of necessitating the use of Mercuric Chloride, a highly poisonous substance and of drying rather rapidly when exposed to the sun, it does not therefore keep its effectiveness as long as the Rosin-Linseed oil-Castor oil repellent.

It is applied painted around the trees in the same way as other grease banding materials.

THE GREEN BUG:—Mezara viridula L.

A fairly large plant bug, uniformly green in colour and whose flat body is roughly triangular in shape is frequently observed on the tender shoots of a great variety of plants. That insect which is cosmopolitan in distribution, causes serious damage to citrus as well as to many other crops such as tomatoes, beans, cucurbits, corn, etc.

Its attacks, especially on tender luxuriant shoots of budded citrus trees have during a recent past been a subject of concern to several of our growers.

The mouth parts of that insect are conformed for piercing plant tissues, by introducing their sharp stylets through the epidermis of plants they suck sap from the internal cells and whilst so doing inject toxic substances which are fatal to the plant.

Young shoots shortly after having been thus attacked wilt and droop, in a few days they are completely dead. When blossoms or young fruits are attacked they rapidly drop off.

As the pest, however, generally confines its attention to the tender and succulent growth of young trees, young plantations usually suffer more damage through the attack of that pest than the older ones.

Measures of control:

Clean cultivation and destruction in the groves of all plants susceptible to harbour the pest. The fact that the pests have very many food plants cultivated and uncultivated render, however, its complete eradication by starvation difficult.

In the case of newly budded trees, grease banding the trunks (as already explained for ants) to prevent wingless nymphs from creeping along the stock to the sprouting buds is advisable.

In cases of outbreaks of the pest, the nymphs can be easily destroyed by spraying with Kerosene-Pyrethrum Extract used in an atomizer or with any other contact insecticide.

Hand collecting of the adults and nymphs is also advisable but special attention should then be given to the fact that when plants are disturbed those bugs drop easily on to the ground where they are difficult to find and thus escape destruction. Spreading a sheet under the plants and shaking the trees to make the insects fall into it is on that account sometimes necessary.

An important aspect of the question is that of cover crops susceptible of harbouring the pest. It is unfortunate that many leguminous plants and especially certain varieties of Crotalaria have been found dangerous from that aspect. It is not advisable to plant such cover crops in citrus groves during the months of the year when the pest appear to be in an active period of reproduction.

Some useful Insecticides and Methods of Application.

Fumigation of young trees to control Scale Insects.

The Green scale whose existence in Jamaica was recorded for the first time, four and a half years ago, is so widespread that though its presence had not been recorded up to then it must have been in the island since many years before.

It is a very destructive pest causing considerable damage to citrus and coffee especially to the younger plants. As it is fostered and disseminated by ants, these should be destroyed simultaneously whilst control measures are applied against the scales themselves.

Fumigation of citrus trees with HCN under tents has not given much promise of application on the field scale in Jamaica. This is mainly due to economic factors, to climatic conditions and also to the difficulty of securing reliable skilled labour for such delicate work.

During the experiments I conducted, I have found, however, that fumigation of young trees to control scale insects and especially the Green scale could be carried out effectively and without inconvenience when rigid covers made of canvas supported on wooden frames to form

light and impervious boxes opened at one end are used instead of the tents. *Those rigid covers being of standard dimensions, the dosage of* Cyanogas per tree remains constant, the man in charge of the fumigation having merely to put the cover over the plants and to pour inside the content of a tube in which is a dose of Calcium Cyanide proportionate to the size of the box. Such doses can be conveniently measured by a responsible person in the office of the estate and carried into the fields in glass tubes.

I shall be glad to show you a model of these portable boxes and to demonstrate in detail how they are worked.

PYRETHRUM-KEROSENE SPRAY FOR THE CONTROL OF GREEN SCALES (COCCUS VIRIDIS) INFESTING THE TENDER SHOOTS OF CITRUS TREES.

As you are aware, lack of skilled labour and the broken nature of the lands which renders transport of water and of heavy apparatus difficult, are in Jamaica the main difficulties that planters meet when spraying has to be done on the field scale.

With regard to the Green scale if a concentrated insecticide could be applied in small quantities and only on infested branches, i.e., without involving the treatment of the whole tree, the difficulties met and the expenses incurred for transporting heavy spraying apparatus and large quantities of liquid through the groves could be avoided.

As the Green scale is usually found congregated on the younger shoots and not on all the branches of citrus trees, and also as during certain seasons that pest reproduces itself so rapidly that remedial measures have to be repeatedly applied, I have been for some time carrying on investigations to see if a sort of local treatment of infested branches could not be devised.

The result of the investigations have been most successful, and the insecticide we have prepared has been used with great advantage in the Government nurseries where the Green scale is now kept under complete control. That preparation will be very useful not only to citrus but also to coffee planters whose most important insect enemy is the Green scale and we can now confidently say that citrus and coffee growers have no more excuse for allowing that pest to retard the growth of their plants.

That insecticide can be most easily prepared by mixing one quart of concentrated Pyrethrum extract in 6 gallons of refined kerosene of light density such as we have on the local market under the trade name of Super Power Kerosene.

That insecticide should not be used in a sprayer but with a hand atomizer which gives off a very fine mist. Such atomizer of fairly large size cost 6/- to 25/- for the best ones. An ordinary Flit Gun will answer the purpose in the case of gardens where only a few trees exist.

1 quart of Pyrethrum extract costs £1 12s. 0d.
6 gallons of Super Power Kerosene cost 9/-
6 gallons of the insecticide cost £2 1s. 0d.

i.e., about 6/6 per gallon.

As over 100 young trees can be treated with 1 gallon of the insecticide, the average cost for insecticide per tree amounts to ¾d. per tree.

As very little of the liquid has to be transported and as atomizers are easily worked by any one, the cost of application is practically nil.

LIME SULPHUR

Lime sulphur is not only a most valuable insecticide but also an excellent fungicide. Having considerable insecticidal values for the destruction of scale insects, mites, etc., and being most useful in keeping fungoid parasites under control, it is under local conditions to be preferred in most cases to the oil sprays.

Lime sulphur can be bought in the concentrated form ready prepared as good unslaked lime can now be easily obtained from the Government Prisons, the insecticide can also be prepared by the orchardist.

Preparation of Self Boiled Lime Sulphur Mixture.

Lime, Unslaked	..	..	8 lbs.
Sulphur ..	..	..	8 lbs.
Water ..	..	..	50 galls.

Place the lime in a barrel, slake with a small amount of water; sieve the sulphur and add slowly to the slaking lime, add enough cold water to complete slaking, stirring constantly. When slaking is finished (from 5-15 minutes) add the required amount of water.

STOMACH POISONS.

Against pests such as caterpillars, slugs, etc., that chew the leaves of plants, stomach poisons are used. The arsenical which under our climatic conditions gives the best results, is Lead Arsenate, it is less apt to burn than Paris Green or Calcium Arsenite. It possesses, furthermore, the great advantage on account of its colour of being more easily detected on the foliage than Paris Green. This is an important point from the practical point of view as it facilitates control of the evenness of the spraying.

On account of the heavy tropical showers which often wash such insecticides from the surface of smooth leaves such as those of citrus, and in certain districts on account of the strong winds which remove all particles of dust from the trees, it is advisable to add to the spray an adhesive, i.e., a substance which sticks the particles of poison to the surface of the leaves.

We have growing all over the country a plant which produces such a substance; it is the Prickly Pear. It can be very conveniently and economically used in preparing the liquid in which Arsenite of Lead is mixed. A pound of Prickly Pear is sufficient for 25 gallons of spray.

Chop the tissues of the plant finely and allow the pieces to steep in 3 litres of water during 24 hours. Strain the liquid through a fine wire gauze or through a piece of muslin and add to the spray.

N.B.—As the mixture does not keep well it should be prepared just before use or a little Copper Sulphate should be added when it will keep several days.

Lead Arsenate is used in the following proportion:—

(a) When obtained in the form of a Paste, use—			
Lead arsenate Paste	..	..	4 lbs.
Water ..	..	..	100 gals.
(b) When in the Powder form:—			
Lead arsenate	..	..	2 lbs.
Water ..	..	..	100 gals.

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CORRESPONDENCE ON AN ARTICLE ON DAIRYING.

Reprint from Daily Gleaner.

The Editor:

Sir,

In the August number of the "Journal of the Jamaica Agricultural Society," there is an article by the Editor on Dairying, which I expect many members have read with interest.

It purports to show how cheaply butter can be produced, and what large profits can be made from its sale at one shilling per lb.

The Utopian herd from which such wonderful results are obtained consists of 200 milkers and 100 heifers of varying ages, living on 1,000 acres of Utopian pastureland. We must presume the writer of this article takes it for granted that sickness and death are unknown in Utopia, as no allowance for such a contingency is indicated. He also appears to have found a breed of cattle that will yield a surprising amount of milk on grass alone, as other feedings are apparently taboo, no provision having been made for them. Of course, he stipulates for a good rainfall, so dry spells in the winter months and periodic droughts are ruled out, and luscious grass is available all the year round.

The calculations are based on every cow giving its rated quantity of milk during every lactation period, so each cow must get in calf at the psychological moment to enable it to be back in the milking shed at the precise time it is required.

Then we are told another £100 profit can be made out of the logwood on this marvellous property. Perhaps some logwood man would tell us whether on 1,000 acres we could grow enough trees to yield this annual net profit without seriously weakening our grass.

But most surprising of all is the £200 profit on pigs over and above the half-penny per quart for separated milk already credited to the milk returns. To obtain this will require grass sales of at least £800 worth of pigs. Are all the pigs necessary for this to be kept on the same thousand acres and adequate feeding grown on it? And it will take quite a bit of feeding, as I can assure Mr. Baxter that pigs do not thrive well on a diet of separated milk and grass only.

The whole article is misleading as it presupposes conditions which do not exist. Every industry can be made to show a handsome profit on paper if one ignores the hard stubborn facts, and bases calculations on possibilities only. Company promoters would have a very thin time of it if it were not so. And what a fortune—on paper—lies in 100 acres of perfect banana land, yielding year after year, 100 per cent. payables, no droughts, no hurricanes, no Banana Borer, no Panama Disease.

What a horrible awakening awaits an unfortunate prospective settler in Jamaica should he rely on the figures given in our leading agricultural paper and decide to take up dairying here.

I am, etc.,

(Sgd.) THOS. ANDERSON.

Mile Gully,

September 18, 1934.

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Provides you with a first-class Lighting Plant and all your Dairy Equipment.

ALL BRITISH GOODS.

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THE PEANUT.

The Peanut, otherwise known as the ground nut, earthnut, monkey nut, pindar, etc., is a legume known botanically as Arachis hypogoea Linn.

The native home of this plant is thought to have been South America, probably Brazil, but it has now been disseminated throughout the tropics and sub-tropics. Its introduction to Africa, where it now forms a most important item in the export trade of some of the British Colonies, is credited to the slave traders.

Description—There are two main types; the Runner, and the Bunch or Cluster. The former is a prostrate herb whilst the latter is of more or less upright habit. The leaves are pinnate, with two pairs of leaflets. The flowers are yellow and are more or less clustered in the axils of the leaves. After the petals are shed, the flower-stalk elongates and curves downwards, burying the small ovary in the soil, where the pod develops. If the ovary fails to become buried it does not reach maturity. Of the two types the Bunch is to be preferred. Owing to its less straggling habit of growth inter-cultivation is much easier, and harvesting is very much simpler.

Soil—A light, sandy loam, containing a good proportion of lime is best. Low-lying, wet clay soils are unsuitable, and heavy dark soils produce badly coloured pods which are not of high grade for retailing purposes, although for manufacturing purposes they are quite suitable. Soil should be well drained.

Preparation—The soil should be thoroughly ploughed or forked to a depth of nine inches, or more, and the lumps broken up. Any vegetable refuse should be well worked in. A fine tilth is essential.

Seed—Seed should be carefully selected, of uniform variety and fresh. Owing to their high oil content, seeds become rancid and lose their germinating ability quite easily.

Planting Season—In Jamaica, seed should be planted from February to April or from August to September. On the lowlands planting may even be done in November. Moist soil is essential for germination of seed and growth of the young plants.

Planting.—The nuts should be shelled immediately before planting. Rows should be 2½ feet apart with plants 1′ to 1½ ft. apart in the rows Seeds should be put in holes 2-3″ deep and the soil pressed down around them.

At the distances named about 35 to 40 quarts of unshelled nuts are required to plant an acre. One quart of nuts contains about 330 seeds.

In very light sandy soils, lacking in fertility, peanuts have been planted as close as 3 inches apart in 2½ feet rows. Such close planting would not however, be desirable on most of our more fertile soils.

Cultivation—Weeds must be kept down and the surface maintained in fine tilth until the plants have blossomed, so that the ovaries will be able to penetrate the soil, otherwise the yield will be seriously impaired.

Time to maturity—The crop period is from four to six months, though some improved varieties do mature in 3 months. As maturity is reached growth ceases and the plants begin to dry up. The skin of the nut becomes darker. If lifted too soon many empty pods will be found, whilst if left too long many pods will break off and be left in the soil.

Harvesting.—The bunch varieties are easily harvested by forking. The nuts are then removed by hand and dried in the sun.

The vines make fine fodder and pigs are often turned onto the land after harvest. They also retrieve any nuts left in the soil.

Yield.—Yields vary considerably, but 2,000—3,000 lbs. nuts in the shell per acre is considered a good yield.

Manuring.—The nuts are very rich in protein, fats, and inorganic salts, hence the crop has an exhausting effect on the soil which should be counteracted by applications of proper fertilizers. It has been estimated that a crop of 16 cwts. per acre removes from the soil 80 lbs. nitrogen, 21 lbs. phosphoric acid and 54 lbs. potash. Peanuts, being legumes, can obtain their nitrogen from the air provided the soil contains the appropriate bacteria; nevertheless small dressings of nitrogenous fertilizers will be of advantage during the earlier stages of the plant's development. Manuring with phosphates and potash increases the ability to utilize nitrogen, and also increases the activity of the nitrogen-fixing bacteria. If lime is deficient, many empty pods will be be formed and for successfully producing the crop, lime in some form, such as fine marl, crushed limestone or slaked lime should be applied.

A 4.10.12 N.P.K. mixture at the rate of 4-6 cwts. per acre is known to have been successfully used abroad.

Uses.—Peanuts are put to a great variety of uses. Every one is familiar with the roasted nuts for eating out of hand. Great quantities are thus consumed. In addition, the nuts are manufactured into a great variety of confections and candies, while the vines, either with or without the nuts, are valuable for stock-feeding, and the growth of the plant is important in soil-renovation.

Peanut oil is one of the best known vegetable oils, but because of its high food value, quality and keeping properties, it has found little use in the arts. It is used chiefly as a substitute for olive oil. Marseilles is the great peanut oil factory of the world, the supply of nuts being drawn largely from Africa, India and Spain.

As a forage crop.—The peanut vines make hay possessing a feeding value for cattle, mules and horses equal to that of clover hay. The yield of hay when the crop is well manured and cultivated ranges from one to three tons per acre. The value of the forage is each year becoming better recognized, and more careful attention is being given to harvesting the nuts in such a way as to preserve the hay in the best condition for feeding purposes.

RED STRIPE

The "D & G" Guaranteed Brand

THE VALUE FOR YOUR MONEY IN AERATED WATERS, WINES, BEER, CONFECTIONERY. . . . .

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ROYAL BLEND

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3d. per pack of 10.

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Lumber, Cement, Zinc Sheets, from 1s. 6d., Nails, Locks, Hinges, Paints, Oils, Lanterns, Barb Wire, etc., etc., etc.

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L. deCORDOVA, Manager.

MARKETING NOTES.

(*Extract from Dairy Produce Supplies in* 1933.)

The increase in consumption (of butter) during the three years 1931-33 had been at the remarkable rate of nearly 2 lb. per head per annum. It is obvious that a considerable part of this growth has been at the expense of margarine and although no official figures are available it is estimated that margarine consumption in the United Kingdom declined by about 3½ lb. per head between 1930 and 1933.

Sufficient data have not yet been accumulated to measure accurately seasonal changes in consumption. Generally speaking, consumption appears to be highest during the summer months and undoubtedly in the past year the consumption of butter as such in this period had been accompanied by its increased utilisation in the manufacture of re-constituted cream; in the short period for which figures are available consumption has been heaviest in the period from July to September. Price, however, is also an important factor, and it is worthy ot note that in each of the past four years consumption has been high towards the end of the year, when prices have been at a low level.

(*Extract from Dairy Produce Supplies in* 1933.)

Monthly imports of Frozen Pork into the United Kingdom during 1933.

Month.	New Zealand.	Australia.	United States of America and Argentina.	Other Countries.	Total
	000 cwts.	000 cwts.	000 cwts.	000 cwts.	000 cwts.
January ..	12	6	8	4	30
February ..	27	4	11	2	44
March ..	26	10	11	3	50
April ..	21	4	15	2	42
May ..	17	8	18	1	44
June ..	14	6	21	2	43
July ..	16	5	22	..	43
August ..	24	6	22	2	54
September ..	38	3	33	1	75
October ..	23	3	20	3	49
November ..	41	3	23	5	72
December ..	19	8	46	4	77
Total ..	278	66	250	29	623

BOSCO

3-Food Drink, Chocolate Malt Flavour.

CAN B SRVED IN MILK OR ON PASTRY AND ICE CREAM.

BETTER FOR YOUR YOUNGSTER, says the Doctor.

EASIER FOR YOU, TOO !

DONALD S. BARHAM, Sole Agent. JAMAICA MUTUAL BUILDING.

(*Extract fom Dairy Produce Supplies in* 1933.)

Average Monthly Prices of Butter at London.

Month.	New Zealand Finest Salted.			Australian Finest Salted.			Danish.		
	1931.	1932.	1933.	1931.	1932.	1933.	1931.	1932.	1933.
	Per cwt. s. d.	Per cwt. s. d.	Per cwt. s. d.	Per cwt. s. d.	Per cwt. s. d.	Per cwt. s. d.	Per cwt. s. d.	Per cwt. s. d.	Per cwt. s. d.
January ..	117 0	99 6	81 9	112 3	98 9	80 9	135 9	125 3	111 0
February ..	121 9	106 9	78 6	119 6	104 3	75 3	148 6	143 0	107 3
March ..	118 3	110 0	74 6	117 9	105 6	72 9	137 0	126 6	97 6
April ..	110 9	106 9	68 9	108 9	105 3	67 0	124 0	116 9	94 0
May ..	110 6	97 0	78 3	107 9	96 9	76 9	119 9	104 3	93 6
June ..	112 0	97 6	80 6	107 6	96 6	79 6	119 3	101 9	90 9
July ..	113 6	104 3	80 0	108 6	101 6	79 9	118 6	112 6	96 6
August ..	114 3	109 3	89 6	110 0	102 6	89 0	124 6	113 3	103 9
September ..	114 6	113 9	101 9	108 9	106 6	101 6	130 9	123 6	115 6
October ..	121 0	110 3	99 0	115 3	100 6	98 9	134 0	119 0	112 3
November ..	113 0	94 6	86 3	107 9	89 9	84 3	132 0	123 9	118 6
December ..	103 6	84 6	69 9	102 6	84 6	69 6	137 0	121 6	110 3
Average ..	114 3	103 0	82 6	110 6	99 6	81 3	130 0	119 0	104 3

(*Extract from Dairy Produce Supplies in* 1933.)

Monthly Imports of Frozen Pork into the United Kingdom.

Month.	1924.	1928.	1929.	1930.	1931.	1932.	1933.
	000 cwts.	000cwts.	000cwts.	000cwts.	000cwts.	000cwts.	000cwts.
January ..	38	20	21	36	39	26	30
February ..	41	23	26	27	42	24	44
March ..	14	33	20	28	27	25	50
April ..	3	29	26	25	19	27	42
May ..	4	21	26	28	28	29	44
June ..	7	8	22	27	19	34	43
July ..	3	13	29	22	34	19	43
August ..	11	22	37	13	22	46	54
September ..	11	15	21	23	30	28	75
October ..	10	26	17	28	25	29	49
November ..	16	19	24	25	36	23	72
December ..	43	18	28	70	45	31	77
Total ..	201	247	297	352	366	341	623

'PHONE 24761 DEBTS COLLECTED.

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THE PLANTER'S AUCTIONEERS.

To-day's Bargain Sales:—(Residential Localities):

A £650 house which £300 can buy
A £975 " " £425 " "
An £650 " " £250 " "

PAYABLE INVESTMENTS (GOOD RENTALS)—
£50 will give you a house for £150. Only £40 will give you a house for £800.
Only £75 will give you a house for £165. — Apply early.

(*Extract from Dairy Produce Supplies in 1933.*)

Average Monthly Prices of New Zealand Pork at London.

Month.	1932. 60/100 lbs. (Average 85)	1932. 101/120 lbs.	1933. 60/80 lbs.	1933. 81/100 lbs.	1933. 101/120 lbs.
	per lb. d.	per lb. d.	per lb. d.	per lb. d.	per lbs. d.
January ..	*	*	6¼	5⅝	5⅝
February ..	*	*	5¾	5¼	4⅞
March ..	5¼	4¾	5¼	4¾	4⅜
April ..	5⅜	5	5⅛	4⅝	4⅜
May ..	5¼	5	4⅝	4¼	4⅛
June ..	4⅞	4½	4½	4⅜	4⅜
July ..	4½	4¼	4½	4⅜	4¼
August ..	4⅞	4½	4⅞	4¾	4⅝
September ..	5¼	5	5⅞	5¾	5⅝
October ..	5¼	5	6⅝	6	5⅝
November ..	5¼	5	6¾	5⅞	5½
December ..	6	5½	7	6	5¼
Yearly Average	5⅛†	4⅞†	5⅝	5⅛	4⅞

*Not available. †Average for 10 months.

(*Extract from Dairy Produce Supplies in 1933.*)

Average Monthly Prices of First Quality English Butter.

Month.	First Quality Farm Butter*. 1931. s.	d.	1932. s.	d.	1933. s.	d.	First Quality Creamery Butter† 1931. s.	d.	1932. s.	d.	1933. s.	d.
	Per lb.		Per lb.		Per lb.		Per lb.		Per lb.		Per lb.	
January ..	1	7½	1	7	1	4½	(a)		1	5¾	1	4½
February ..	1	7½	1	6¼	1	4¾	(a)		1	5¾	1	4½
March ..	1	7¼	1	5¾	1	3½	(a)		1	5¾	1	4½
April .	1	5½	1	5	1	2¼	1	5½	1	5½	1	3¼
May ..	1	3	1	3	1	0½	1	4¾	1	4¾	1	3
June ..	1	2¼	1	1½	1	0¼	1	4	1	4	1	2
July ..	1	3¼	1	2¾	1	1¼	1	4	1	4	1	2
August ..	1	4¼	1	3½	1	2	1	4	1	4	1	2¼
September ...	1	4½	1	3¼	1	3¼	1	4	1	4½	1	3¼
October ...	1	5	1	3½	1	3¾	1	4½	1	4½	1	3½
November ..	1	5½	1	4½	1	3¾	1	5	1	4½	1	3
December ..	1	7	1	5½	1	4½	1	5¾	1	4½	1	2
Average for year	1	5¼	1	4¼	1	2¾	..		1	4¾	1	3¼

*At Country Markets in England and Wales.
†From the weekly quotations of the English Butter Makers' and Butter Blenders' Association.
(a) Not available.

LOCAL PRODUCE PRICES.

Annatto—Well cured, Red Seed	20/- delivered Kingston		
Cocoa—Ordinary	18/	"	"
" Fair Fermented ..	18/	"	"
Estates Fermented	19/	"	"

Coffee—Nominal—Market dull—No demand from abroad.		
Good Ordinary	..	36/- delivered Kingston
Fine Ordinary	..	38/- " "
Manchester—B	..	38/- " "
Manchester—A	..	40/- " "
Honey—White ..	..	2/3 per gln. delvd. Kingston
Pale ..	..	1/9 " "
Light ..	..	1/6 " "
Dark ..	..	1/3 " "
Kolanuts—Sound quality, well cured		6/- delivered Outport 7/- delivered Kingston
Orange Oil—Sweet, sound quality		3/- per lb. delivered Kingston
Sarsaparilla—Well cured, Red Roots		40/- per 100 lb. net weights, delivered Kingston
Wax—Pure and clear		7d. per lb. net weights, delivered Kingston.

FOR YOUR HEALTH SAKE
Demand the CRACKER
STAMPED
X. L. C. R.
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THE JAMAICA BISCUIT CO., LTD.

NURSERY PLANTS.

Now is the best time to order Mango Plants, St. Julians in large pots 4/- each.
White Grapes plants for April deliveries 1/- each
Flowering size Rose Bushes in 8" pots 3/- each.
Palms of most varieties—Inspection invited.

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"GLOSTER HALL"

and other LAND ADJOINING, 716 acres, Registered Titles, in the parish of St. Ann. Elevation, 2,000 ft., fine climate, only 42 miles from Kingston, with good main roads all the way. 100 acres more or less in good bananas planted in cocoanuts, 1 square chain apart, 400 acres in ruinate with hardwood lumber, 50 acres in guinea grass, balance in common pasture with pimento, fruit trees, some coffee and cocoa on property. The property is well watered by springs and ponds. Most of the pastures are sub-divided by stone walls and balance in wire fences, also the line fence. LARGE DWELLING HOUSE consisting of 5 bed rooms, 2 dressing rooms, 1 dining room, 1 drawing room, 1 passage, 1 bath room, 2 pantries, 1 kitchen, 1 office, verandah 3 sides of house with lock-up stores under house, 2 garages and stables, 2 large outbuildings with servant rooms with kitchen, 1 servant's cottage, with 2 rooms, 1 cottage, 2 rooms, 4 labour barracks; 2–400 gal. and 1–2,000 gal. tank in yard. DELCO PLANT IN DWELLING HOUSE. Large flower garden in front of house with tennis court, summer house and nice common. ONE CATTLE DIP, over 100 head of cattle. The property could run 200 heads.

Apply to: W. H. W. WESTMORLAND, ESQ., Gloster Hall, Blackstonedge P.O.

TO SELL

"MARY'S VALE,"

Consisting of 138 acres, 1 rood, 3 perches. Registered Title, in the parish of St. Ann, about 2 miles from Guy's Hill on main road to Gayle, Blackstonedge to Moneague. Elevation 2,000 feet, fine climate, good house spots for building; excellent view—only 40 miles from Kingston, with good main road all the way. 2 SHOPS AT BLACKSTONEDGE, 1 labourers' barracks, 3 rooms, 1 Headman's house, 55 acres in good bananas planted through in cocoanuts, 1 sq. chain apart; 83½ acres in Guinea grass and common, all good land for bananas, cane, tobacco, coffee, &c. THE PROPERTY is well watered and sub-divided by wire fences.

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FOR SPRAYING AND LIMEWASHING

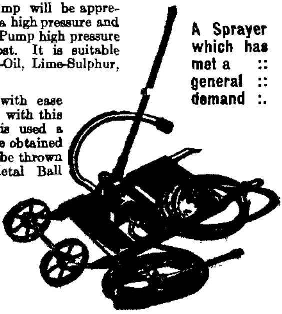
THE VERMOREL HEADLAND PUMP

THIS light and strongly constructed Pump will be appreciated by those who wish to spray at a high pressure and with a minimum of effort. With this Pump high pressure spraying can be carried out at a low cost. It is suitable for all washes and is not affected by Tar-Oil, Lime-Sulphur, &c.

A Sprayer which has met a :: general :: demand :.

150 lb. per square inch can be maintained with ease when a variable spray lance or gun is used with this Machine, and if a fine spraying nozzle is used a **pressure of 220 lb. per square inch** can be obtained without difficulty, and a fine mist spray can be thrown from 2 feet to 30 feet from the nozzle. Metal Ball Valves are fitted, and the Pump is fixed on a strong platform with two wheels and handles. Weight of Pump, complete with Suction Hose and Pressure Gauge, 94 lb. Overall length, 4 ft. 6 ins. Overall width, 1 ft. 10 ins. It is supplied complete with 8 ft. Suction Tubing, fitted with strainer, pressure gauge, and various spraying fittings.

This Sprayer can also be supplied with variable Spray Lance or Gun, or with two sets of Hose and Lances which can be used at the same time. Prices on Application.



Prices from £12 17s. 6d.
or Complete with 30 feet Special Tar Wash Resisting Hose 22 ins. Strainer Lance and Swivelling. Nozzle. £15 3s. 0d.

All Types of Wet and Dry Sprayers Made **and Stocked.** 1½ Pints to 130 Gallons.

Prices from 9s. 6d. to £147 0s. 0d.

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BEE INDUSTRY NOTES.

It is always of interest to read what other countries think about us. In a University of California Bulletin on the Economic Aspects of the Bee Industry, the following which was extracted from the English Produce Markets Review and the report of the Imperial Economic Committee, appears:—

"Honey originating in the *British West Indies* is chiefly produced in *Jamaica*. This Island is said to have the highest production to the square mile of any country in the world. Production methods are well advanced, and the most important source of nectar, the logwood tree, yields a very desirable product.

Jamaican honey has met with adverse discrimination in the British market for many years as the result of poor standardization and the method of packing for export in casks that are in some instances reputedly secondhand and poorly cleaned. This situation is, however, well recognised and attention is being given to every possible means of improvement."

It is also noteworthy that in some of the fruit orchards in that city the pollination problem has become so acute that orchardists hire bees for the express purpose of assuring pollination.

(*Jamaica Gazette 6th September*, 1934.)

HONEY REGULATIONS.

No. 687.—With reference to Government Notice, No. 43, published in the Jamaica Gazette of the 19th January, 1933, the following Regulations were made by the Governor in Privy Council on the 28th August, 1934, under Section 4 (1) of Law 20 of 1920 "The Importation of Bees Law 1920," in regard to the transhipment of Honey and Beeswax in substitution for the Regulations made by the Governor in Privy Council on the 3rd January, 1933.

Regulations made by the Governor in Privy Council under Section 4 (1) of the Importation of Bees Law 1920, (*Law* 20 *of* 1920).

1. The Director of Agriculture is authorised to grant permission to bring within the limits of this Island honey or beeswax intended for transhipment or in transit on ships or vessels on the following conditions:—

(i) Honey intended for transhipment shall be packed in sealed metal containers entirely sound and free from leaks. The gross weight of each container shall not exceed 7 lbs.

(ii) The metal containers of honey intended for transhipment shall be securely cased in new wooden cases, hopped or wired and free from all traces of honey on the outside. The gross weight of each case of honey shall not exceed 70 lbs.

(iii) Beeswax intended for transhipment shall be refined wax packed in sealed metal containers. The gross weight of each container shall not exceed 28 lbs.

(iv) The metal containers of beeswax intended for transhipment shall be securely cased in new wooden cases hooped or wired and free from all traces of honey or beeswax on the outside. The gross weight of each case of beeswax shall not exceed 70 lbs.

(v) The transhipment of any honey or beeswax imported under the foregoing Regulations shall take place in the port of Kingston only and shall not commence until the consignment has been inspected on board ship by an Officer of Customs who, if he finds that these Regulations have not been fully complied with, shall have power to order that the whole or any portion of such consignment be not transhipped.

(vi) Honey or beeswax in transit on ships or vessels but not intended for transhipment in this Island and which is not packed in accordance with the provisions of Conditions (i), (ii), (iii) and (iv) herein, shall be permitted within the limits of the Island on the following conditions only:—

(a) That the hold or part of the ship in which such intransit honey or beeswax is stored shall be so secured as effectively to prevent the entrance of bees thereto.

(b) That all hatches or entrances to any hold or part of a ship in which such intransit honey or beeswax is stored shall be sealed by an Officer of Customs immediately upon the arrival of such ship in any port of this Island and that such hatches or entrances shall remain sealed as long as such ship shall remain within the limits of the Island.

(c) That no such honey or beeswax intransit shall be unshipped or landed or transhipped under any circumstances from any vessels or ship within the limits of the Island.

2. The Regulations made by the Governor in Privy Council on the 3rd day of January, 1933, under Section 4 (1) of The Importation of Bees Law 1920 (Law 20 of 1920) and published in the Jamaica Gazette of the 19th January, 1933, are hereby rescinded.

Mad e by the Governor in Privy Council on the 28th day of August, 1934.

A. S. JELF,
Acting Governor.

McKINNONS COFFEE MACHINERY

Will assist you in securing high prices for your Coffee

PULPERS

PEELERS

POLISHERS

OBTAINABLE FROM

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SPRAYERS

ABOL SYRINGES

EMASCULATORS

HOG and POULTRY FENCING

GO TO

STIVEN'S COLOSSEUM, LTD.

113 HARBOUR STREET

AFFORESTATION.

(*From "The African World," August 25th,* 1934.)

A New Forest Reserve.

Start of Huge State Scheme.

The Union Department of Agriculture (of South Africa) has given notice of its decision to set aside 2,150 morgen of the Novo Estate in the Garcia Pass Forest Reserve as a demarcated forest.

With this official intimation a start will be made with the planting of trees on the foothills of the Langeberg as portion of a great scheme of afforestation.

Apart from the tremendous economic advantage resulting from the production of commerical timber, the decision of the Government is hailed with the greatest satisfaction, states the "Cape Times," because the establishment of these demarcated forests in localities where extensive mountain burning has occurred in the past will act as an effective check on indiscriminate burning and enforce systematic burning at strategic periods.

The present afforestation scheme may involve the planting eventually of 1,000,000 or more trees.

PENSION YOURSELF AT 60.

Plan to pay yourself a pension at 50, 55, 60 or 65 years of age, a guaranteed monthly income, to give you the pleasures you have always wanted, or to provide the actual necessities for the rest of your life.

Invest in a Dominion Life Pension Bond or Protection Investment Bond and enjoy the benefits provided:

(a) An assured income for yourself in later years.

(b) Benefit to your dependents if you die before Pension age.

THE DOMINION LIFE ASSURANCE CO.

HEAD OFFICE:

WATERLOO, ONTARIO,

GERALD MAIR, - Branch Manager,

LISTER MAIR, M. T. McGILCHRIST, Miss C. JAMES,
Travelling Representatives.

CORONATION BUILDINGS, - KINGSTON.

From **LIGHT TRANSPORTATION**

To **HEAVY HAULAGE PROBLEMS**

THE FORD 1934

V8 Car or Truck

Proves equal to all it is asked to do.

Ask Us for a Demonstration, it will Pay You.

KINGSTON INDUSTRIAL GARAGE.

SHOP AT

"R"

HANNA & SONS CHAIN STORES

THE HUB--91 King St.
79½ King Street.
BARGAIN UPSTAIRS.
REGENT SHOE SHOP.
KIDDIES SHOP--95 King St.
3 King Street
RIVAL SHOE STORE--33 King St.
HANNA'S BARGAIN STORE.

WHERE ABSOLUTE SATISFACTION IS GUARANTEED.

Johnnie Rae's Garage

GUARANTEES SATISFACTION.

LET US PROVE IT.

176-178 Harbour St. Kingston. Tel. 2885.

RECIPE PRIZE COMPETITION.

HOUSEHOLD RECIPES.

Below we reproduce another of the entries to our recent Recipe Competition which the author very kindly consented to our publishing. We are sure our lady readers will appreciate it.

Set of Household Recipes for Breakfast, Lunch, Tea, Dinner and Desserts—

By Miss Mary Watson, Aggrey Park, Half-Way Tree.

BREAKFAST RECIPES.

Hominy—1 pint hominy, 1½ quarts water, 1 tablespoon salt, ½ cup sugar, dash of nutmeg, milk of 1 cocoanut.

Wash thoroughly and soak 1 pint hominy in 1½ quarts water for 4 hours. Place on the back of the stove while dinner is cooking and let boil slowly until grains are soft. Add salt and stir. Next morning add half the milk from a grated coconut and let cook until well heated. Add half a cup sugar and a dash of nutmeg. Serve with honey and cream skimmed from the other half of the coconut milk.

Corn Meal Porridge—1 cup corn meal, 1 tablespoon salt, 1 cup boiling water, ½ cup cold water, ½ cup milk. Mix cornmeal salt and cold water. Stir slowly into boiling water and let cook at the back of the stove one hour or until thick. Add half cup milk and serve with cream and honey or sugar.

Rice Porridge—Left over rice is heated in cow's, goat's, or coconut milk and served with cream, sugar or honey.

Milk Toast—Cut slices of bread half an inch thick from a stale loaf. Toast. Place each slice in a porridge bowl and add hot milk.

Soaked Crackers—Put a dozen water crackers in a large earthenware bowl. Pour boiling water over them and cover for five minutes. Lift carefully out, three to each porridge bowl. Add milk, cream, honey or jelly.

Bilberries and Corn Flakes—Pick over and wash bilberries, about six tablespoons for each person. Serve with corn flakes and cream.

Bananas and Biscuits—Break a shredded wheat biscuit or three Jamaica whole wheat crackers in a porridge bowl. Add a sliced banana. Serve with cream.

Salt Fish and Ackees—½ lb. salt fish, 1 dozen ackees, ¼ teaspoon black pepper, 1 sliced onion, ½ cup coconut oil. Soak salt fish one hour. Boil for fifteen minutes, remove skin and bones. Cook ackees in boiling salted water for ten minutes. Drain, mix with fish and place on a platter. Add a gravy made of coconut oil, onions and pepper.

Scrambled Eggs and Cheese—4 eggs, 4 tablespoons grated cheese, ½ teaspoon salt, 4 tablespoons milk, ¼ teaspoon onion juice, ¼ teaspoon black pepper, 2 tablespoons coconut oil. Soak cheese in milk. Beat eggs slightly. Add salt, pepper, onion juice. Combine mixtures. Heat frying pan, add coconut oil and pour in mixture. Cook until creamy, stirring constantly. Sprinkle with chopped parsley.

Smoked Pork and Eggs—Scald home cured smoked ribs. Remove skin, splice thin and fry until brown. Lift out of frying pan, drain off fat and fry eggs.

Dumplings—Sift together, 1 cup flour, ¼ teaspoon salt, 2 teaspoon baking powder. Rub in one tablespoon shortening. Add milk or water to make a dough that will roll out. Cut with biscuit cutter.

Rice and Shrimps—Cook one cup rice in one quart boiling salted water until grains are soft. Drain in collander. Put one lb. shrimps in 2 quarts boiling salted water. Cook for 15 minutes. Strip and place in a frying pan with a chopped onion, pinch black pepper, four tablespoons butter and half a teaspoon of currey. Let simmer 15 minutes. Serve with sliced cucumbers.

Smothered Smoked Herring—3 herrings, 4 tablespoons oil, 1 large tomato, 1 sliced onion, $\frac{1}{2}$ a pepper sliced. Soak herrings for half an hour. Remove skin and backbone and cut in halves. Put in frying pan with oil, tomato, onion and pepper and cook twenty minutes.

Fried Sprat or other small fish—Clean fish, wash and dry. Make a mixture in the proportion of 1 teaspoon salt, $\frac{1}{2}$ teaspoon black pepper, $\frac{1}{2}$ teaspoon country pepper, $\frac{1}{2}$ teaspoon onion juice and one tablespoon flour. Dredge fish well and fry in deep fat.

Codfish Cakes—$\frac{1}{2}$ lb. codfish, 2 eggs, $\frac{1}{2}$ tablespoon each of pepper and chopped scallion, oil. Boil and shred fish fine. Add beaten eggs and seasoning. Fry in deep fat.

Smoked Jack—Boil jack or other smoked fish. Remove skin and bones and flake. Add melted butter, pepper and lime juice.

LUNCH RECIPES.

Club Sandwich—Cut stale white bread in slices, $\frac{1}{4}$ inch thick, allowing three slices for each person and toast. Spread one slice with butter, lay on broiled ham or bacon or a slice of any cold meat. Add a leaf of lettuce or some water cress. Spread the underside of the next slice with mayonaise seasoned with pickapeppa. Spread cheese paste on the upper side then sliced tomato or cucumber or both. Cover underside of top slice with mayonaise. Serve with pickles or olives.

Macaroni and Cheese—Put one cup macaroni in two quarts boiling salted water and cook ten minutes. Drain. Add one cup grated cheese, half a cup tomato juice seasoned with salt and pepper. Pour into a buttered baking dish and bake with enough cream sauce to cover it. Serve with watercress and French dressing.

Cream Sauce—2 tablespoons flour, 2 of butter, $\frac{1}{2}$ teaspoon salt, $\frac{1}{4}$ teaspoon onion juice, pinch of pepper, half cup milk. Melt butter, add flour, blend and cook two minutes. Add seasoning then milk slowly to make a smooth sauce. Thin as desired. This is a foundation for sauces, soups and gravies.

French Dressing—$\frac{1}{2}$ teaspoon salt, 1 teaspoon sugar, $\frac{1}{2}$ teaspoon mustard, $\frac{1}{2}$ teaspoon paprika, $\frac{1}{4}$ teaspoon pepper juice, $\frac{1}{2}$ teaspoon onion and garlic juice, $\frac{1}{4}$ cup coconut oil, $\frac{1}{4}$ cup vinegar. Put the first six ingredients in a bowl and mix well. Add oil and vinegar slowly and alternately rubbing well.

Banana Salad—Peel bananas. Cut in halves lengthwise and crosswise. Lay on lettuce leaves, watercress or shredded cabbage. Cover with chopped cashew nuts. Serve with French dressing and toasted Jamaica crackers or cassava wafers.

Roast Beef Sandwich—Toast stale white bread, cut in half into slices. Lay on slices of left over roast beef. Cover with hot gravy. Serve with sliced pineapple. Left over roast of any kind may be used in the same way.

Potato Salad—Peel and boil $\frac{1}{2}$ dozen potatoes, 15 minutes. Cut in dice while warm and mix in enough French dressing to be absorbed. Chill and add chopped parsley, diced celery and pickles. Mix and serve with hard boiled eggs or cold meat on lettuce leaves.

Pepper Pot—1 lb. any kind of kallalu or spinach, $\frac{1}{2}$ lb. smoked pork, 2 stalks scallion, 1 lb. salt beef, 1 pepper, sprig of thyme, 1 dozen pimento

seeds, sprig of parsley, 1 small breadfruit, 4 small cocoes. Put kallalu, meat and seasoning to cook slowly. When meat is done, remove it from soup. Pass liquid through a collander and return to fire. Add breadfruit cut in slices and cocoa and cook for half an hour. Add dumplings.

TEA RECIPES.

Butter Jamaica *water crackers* slightly. Put in oven until crisp.

Butter *cassava wafers.* Put in oven two minutes and fold over. Put thin slices of *cheese* on whole wheat *wafers.* Put in oven until cheese melts.

Cinnamon toast—Make thin slices of toast. Butter, sprinkle with a mixture of two parts granulated or powdered sugar and one of ground cinnamon. Place in oven for two minutes. Slice *whole wheat bread* thin and spread with *mango cheese.* Slice *whole wheat bread* thin and spread with a paste made of *alligator* pear, mayonaise and pickapeppa. Lay buttered slice on top. Cut in halves. Make sandwiches of thin slices of *raisin bread* spread with a paste made of grated *cheese,* butter and pickapeppa.

Hot biscuit—1 cup flour, 2 teaspoons R.B. Powder, ¼ teaspoon salt, 1 tablespoon shortening, ½ cup or more milk. Mix and sift dry ingredients, cut in shortening. Add milk to make a soft dough. Roll out thin and cut in fancy shape. Bake ten minutes in hot oven. Split and butter.

Gingerbread—2 cups flour, ¾ cups new sugar, 4 teaspoons ground ginger, 2 teaspoons soda, 1 cup shortening, 4 tablespoons milk. Mix flour and ginger and rub in shortening. Melt sugar in sauce pan and let cool. Add to flour mixture and beat well. Dissolve soda in milk and add to other mixture. Beat well. Bake in slow oven.

Sugar Cookies—½ cup butter, 1 egg, 1 cup sugar, 3 tablespoons cream, 2 cups flour, 1 teaspoon R.B. Powder, pinch salt flavouring. Cream butter and sugar. Add beaten egg, then cream, then flour sifted with baking powder and salt. Add desired flavouring. Roll out very thin. Cut in fancy shapes and bake in moderate oven. Sprinkle with granulated sugar. A piece of nut, raisin or citron may be placed on each cookie before baking.

Fancy Tea Cakes—3 eggs, ½ cup sugar, ¼ tablespoon salt, ½ teaspoon R.B. Powder, 1 cup flour, 1 teaspoon vanilla, ½ cup melted butter.

Beat eggs and sugar very light. Fold in flour sifted with baking powder and salt. Add vanilla and melted butter. Sprinkle sugar on top and bake in greased muffin tin in hot oven twelve minutes. Cover with frosting made of two table spoons hot milk, half table spoon butter, one and a half cups confectioners' sugar and half teaspoon vanilla. Add butter to hot milk, then sugar slowly, rub well, add flavouring.

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My Own Cake—2 cups pastry flour, 2 eggs, 1 cup sugar, 4 teaspoons R.B. Powder, ¼ cup butter, ¼ teaspoon salt, ¾ cups milk, 1 teaspoon vanilla. Cream butter, add sugar and well beaten yolks. Rub well. *Mix and sift flour, baking powder and salt. Add alternately with milk,* rubbing well. Fold in stiffly beaten white and flavouring. Pour in greased square pan. Mix a half cup grated coconut with one teaspoon of ground cinnamon and cover top of batter. Bake in moderate oven. When cool, cut in squares.

Jelly Roll—2 eggs, 1 cup powdered sugar, 3 tablespoons water, ½ teaspoon salt, 1 tablespoon orange juice and rind, 1 teaspoon R.B. Powder. Beat yolk until thick. Add powdered sugar, water and orange juice. Lift flour, salt and baking powder together. Add to other mixture, mixing well, but not beating. Fold in stiffly beaten whites. Spread batter thinly in square pans and bake in moderate oven. Turn out immediately on damp cloth that has been sprinkled with powdered sugar. Cut off crusts, spread with guava jelly, roll and cover up in cloth. When removed from cloth, sprinkle with powdered sugar and slice.

Loaf Cake—½ cup butter, 2 eggs, 1 cup sugar, ½ cup milk, 1 cup bread-flour, ½ cup corn starch, 3 teaspoons R.B. Powder, 1 teaspoon flavouring. *Cream butter, add sugar and well beaten yolks.* Rub well. Add milk in turn with flour corn starch and baking powder which have been sifted together. Fold in stiffly beaten whites and flavouring. Bake in pennel or loaf pan in moderate oven.

To be continued.

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Extract from Jamaica Gazette, September 20, 1934.

Return showing the approximate number of Cattle Slaughtered in the several parishes during the month of August, 1934.

Parish.	No. of Cattle Slaughtered.
Kingston	840
St. Andrew	37
St. Thomas	60
Portland	138
St. Mary	131
St. Ann	210
Trelawny	70
St. James	191
Hanover	100
Westmoreland	155
St. Elizabeth	150
Manchester	257
Clarendon	124
St. Catherine	203
	2,666

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Acting Dep. Inspector General.

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BRANCH NOTES.

All Reports received are acknowledged in this section of the Journal. This month we have only been able to put in print Notes from Branches who have not yet had a publication this year.

Branch Secretaries should **write on one side of the paper only.**

[Ed.

ST. MARY.: Baxters' Mtn.—Meeting 18.9.34. Discussing the minutes, the President told members to obtain Rat Poison at a local druggist. A letter from the Assistant Instructor re pigs was read and discussed. A new member was enrolled. Authorised Persons, J. Phillips and A. Strachan, reported all correct and B. Strachan reported one arrest. Their implements were shown in good order. Mr. Dryden asked for some information re catch crops which was willingly given by Messrs. T. Baxter and M. Casey. Again the disgraceful scenes witnessed at the fording at Fort George, sickness contracted, delaying and damaging of products taken out, danger of school children crossing, etc., etc., were discussed. Consequently a letter was drafted and signed to be handed to the Hon. Member for the parish. After discussing minor matters, the School buildings being included, the Roll was called showing 12 members and 4 visitors present. The meeting rose.

Annotto Bay P.O. R. J. Lawson Ricketts, Secretary.

Hampstead.—Meeting September 17. Present: Messrs. J. J. Beale, 3rd Vice-President (presiding), six other members and one visitor. Telegram was read from Instructor Coke stating that an accident hindered his attendance. Authorised Person Jones reported that he had not received his handcuffs. The Secretary was instructed to see to this matter. Messrs. Beale and Nicholson spoke on the Citrus Industry. It was decided that the Instructor be asked about same. Many important matters listed on the Agenda were deferred for next meeting when it is hoped there will be a larger and more representative attendance. The meeting terminated with The King.

Hampstead P.O. H. G. P. White-Davis, Secretary.

Long Road.—Meeting September 17th. Present: Mr. R. M. Hird, President, nine other members and some visitors. Authorised Persons, A. B Davis and John Lindo reported no work done. The next item discussed was Agricultural Produce not down on Schedule for A. P's. Members mentioned mangoes, but Mr. A. B. Davis gave good reasons for omitting this Product. It was agreed that pears be put on the Schedule. It was decided that the Secretary be asked to write the Parochial Board re improvement of Parochial Road No. 14. It was agreed that the Branch obtain a grindstone. The meeting adjourned.

Enfield P. O. A. B. Davis, Asst. Secretary.

Oxford.—Meeting held 18.9.34. Present: four members and two visitors. Correspondence was dealt with. The President asked the Secretary to send a letter to the Secretary of the J. A. S. reporting the transfer of authorised Person S. Brown, to the Oxford Branch. It was noted with regret that since the resignation of Mr. J. A. Banks an Instructor has not visited the Branch. It was decided to change the day for meeting to Thursday if it was agreeable to the majority of the members. The meeting was terminated by the singing of the National Anthem.

Free Hill P.O. (Mrs) R. A. Thomas, Secretary.

Preston.—Meeting 26th September. As arising from the minutes, the Secretary gave a short account of his and Mr. Craford's meeting with Mr. A. D. Goffe re water supply for the district. As a result of this effort £22 was allotted to regulate the two springs mentioned. Re Panama Disease, Mr. A. Wright enquired about the oil promised for treatment. In reply the President stated that he had had a visit from the Plant Disease Instructor and a drum with some oil was left in his charge to be given to persons who needed same. The Secretary was asked to get some information re the apparent neglect of the Branch by an Instructor, since the resignation of Mr. Banks. Members were anxious to know if there was no Instructor for the section. Other matters were dealt with. Nine members were present with three A. Ps. who reported all correct.

Bonny Gate P.O. Isaac A. Amiel, Secretary.

Labyrinth.—Meeting 19th September. Present: Mr. L. A. M. B. Coke, Instructor, and six members. The President and Vice-Presidents being absent, Mr. Coke was voted to the chair. Detailed report on the work of the experimental plot, was submitted. Already there are favourable comments to be heard from all sections of the community on the successful working of the plot. Brief comments were made on the letters received from the Postmaster for Jamaica re the proposed Post Office for the district. The Secretary was instructed to write a letter to Mr. G. A. Rock, thanking him for his interest and zeal in the matter. The Instructor advised the Branch on the immediate sowing of vegetable seeds to meet the forthcoming season. He handed out samples of seeds for planting on the Plot. He next encouraged members to get from the Head Office "Marsh Seedless" grape fruit seedlings and Valencia orange seedlings. It was suggested that Irish potatoes should be planted on the plot. The meeting then adjourned.

Gayle P.O. A. P. Atkinson, Reporting Secretary.

Wallingford.—At the meeting fixed for the 14th September, owing to the unfavourable condition of the weather only four members and the Instructor, Mr. L. A. M. B. Coke attended. As there was not a quorum, no regular business was done, but a profitable and interesting discussion on matters affecting the welfare of the Branch was indulged in for a short time.

Guy's Hill P.O. E. L. Welds, Secretary.

ST. ELIZABETH: Bull Savannah.—Meeting 7th September. Present: were Instructors H. W. Lynch and A. L. Virtue, Mr. W. H. Hanson, President; 40 members and 12 visitors. Instructor Lynch gave a very full and clear explanation of the Law governing Authorised Persons, for which he was thanked. Members were then asked to consider the matter of nominating Authorised Persons to be attached to the Branch The Secretary was instructed to write to the Parent Society regarding resolutions sent up re Post Office and an office for the Registration of Births and Deaths. Letter informing the Branch about the Peanut Competition was read from the Parent Society. Instructor Lynch explained the object of the Competition which he said was really to find out if this crop could be grown successfully in this section and if so, it will then be planted on a larger scale to take the place of one of the declining industries. Quite a few non-members gave in their names. Letter from the Parochial Board was read stating a grant was made for the improvement of the road. The construction of a road leading to Alligator Pond was discussed and approved. Before giving what must be termed a very instructive and inspiring address on the cultivation of the peanut Mr. Virtue expressed his regret of leaving so soon and thanked the people for their kindness to him. He then touched on the corn industry and promised to do all in his power to help its improvement. Then he gave the lecture on peanuts; kind of soil, method of planting and all that was necessary for the production of a good crop were dealt with so that one felt as if one were out in the field, planting caring for and then reaping the nuts. A hearty vote of thanks was given him. The gratitude of the House for the whole-hearted way in which Mr. Virtue did his work and for his very genial companionship was expressed. Keen regret for his leaving was also expressed and he was wished abundance of success in his new sphere of labour. Mr. Virtue then made a suitable reply. After the singing of the National Anthem the meeting stood adjourned.

Alligator Pond P.O. (Miss) E. C. Royal, Assistant Secretary.

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Kilmarnock.—Meeting September 20th. Apology for absence was tendered from Instructor Wray as he had another meeting of importance to attend that evening. Re the nursery it was arranged that each member should give a 1½d. each to employ a person to weed it out. The Instructor advised that Mr. Baxter wrote and urged that the nursery be not dropped. Letter stating that Director of Agriculture required clean dry corn was submitted. It was regretted that the Branch could not supply this. Correspondence re Post Office was also dealt with. The Secretary was asked to remind Dr. Johnson of the need of a Maternity Nurse for this district. Meeting closed with National Anthem.

New Market. JOHN E. MONTEITH, Secretary.

WESTMORELAND: Blanwearie.—Meeting 12th September. Present: Instructor J. A. Graham, Mr. W. McKenzie, 1st Vice-President presiding, 15 senior members; 9 junior members and three visitors, one of whom subsequently became a member. The yaws question and water problem were dealt with as matters arising from the minutes. The Secretary was directed to write to the Parochial Board and Mr. Murray strongly on these matters, and send copies of the correspondence to the Hon. Dr. Hudson. Authorised Person Theo. Reid reported O.K., while Authorised Person W. McKenzie reported an arrest. The Secretary stated that a Juvenile Branch of the Society was organized earlier in the afternoon. The Instructor gave an address in which he stressed the following points (a) that the fertility of the soil should be kept up by the use of manures. (b) that coffee should be planted as a standby. (c) that coffee will grow under shade. The Instructor also showed how tomato should be planted. With the National Anthem the meeting was brought to a close.

Friendship P.O. J. O. RAMSAY, Secretary.

Sheffield.—Meeting held September 20th. Present: Mr. T. A. Campbell, President, Mr. J. A. Graham, Instructor and 8 other members some visitors and school children and the Secretary. The Chairman mentioned that no meeting was held for two months owing to the repairs that were being done to the building. He spoke on agricultural matters, exhibited a large garden egg grown on a plant grafted on a susumber by the Instructor. After the meeting it was cut up and given to the members present to get the seeds for planting. The Secretary stated that the Instructor, Mr. Graham, who was so useful would be leaving this parish for some other part of the Island. Mr. Graham in his address wished the Branch success. He advised the planting of staple crops, coffee, cocoa and other plants and the rearing of good breeds of pigs and goats. A hearty vote of thanks was accorded him. Mr. J. Crampbell congratulated the Instructor. The work and worth of the Instructor was lauded.

Sheffield P.O. SAML. M. HALL, Secretary.

HANOVER: Lethe.—Meeting 26th September. Present: Mr. Saml. Grubb, presiding, Hon. Dr. Veitch, M.L.C., and over 40 visitors and members. The Chairman introduced the Hon. Member to the meeting and expressed pleasure at having him present that afternoon. Mr. Veitch then suitably replied and wished the meeting much success. The minutes of last meeting being read and confirmed and there being no special subject for discussion the meeting was brought to a close by singing of the National Anthem.

Anchovy P.O. C. L. WILSON, Secretary.

CLARENDON: Brandon Hill.—Meeting held 17th September. There were present: Instructor, W. L. Shirley; Mr. C. S. Grant, Clerk of Courts; the President, Secretary, 26 other members and 5 visitors. Mr. Grant was invited for the purpose of dealing with some questions, relating to the duties of Authorised Persons. These questions were fully dealt with by Mr. Grant who gave very helpful advice to the Authorized Persons. A hearty vote of thanks was accorded him. Five Authorised Persons present reported two attempted arrests. The Instructor informed the meeting of the Clarendon Show to be held next year, and advised early preparation. It was decided that a letter of condolence be sent to the bereaved family of late Mr. S. Small, who was a member of the Branch. Minor matters were dealt with and the meeting terminated with the singing of the National Anthem.

Colonel's Ridge P.O. E. A. GRAHAM, Assistant Secretary.

Crooked River.—Meeting September 14. Present: Instructor, W. L. Shirley, Mr. D. C. Scott, 1st Vice-President, presiding, 22 other members, and two visitors. Report of Mr. A. R. E. Scott, delegate to Half-Yearly Meeting was read and adopted. Mr. Scott was thanked. He suggested, and it was agreed to, that a resolution be sent to the

"Clarendon Branches Associated," that delegates to Half-Yearly Meetings be not allowed to speak more than once, that they be given a limited time to speak and that repetitions by other delegates be not allowed. As a result of the Instructor's observation on his visit to several holdings in the Douce District previous to the meeting, he gave a very lengthy and instructive address on (a) Transplanting of Coffee and Citrus, (b) Curing of Coffee. He was given a vote of thanks. The Instructor stated that he is expecting a supply of P.O.J. cane cuttings from Hope Farm to be distributed at an early date. Mr. Amos Ricketts pointed out the necessity of obtaining a good Boar for the improvement of breeds in the district. This met the approval of the meeting and a Committee was appointed to go into the matter, inquiry to be made from Mr. Harper Watson and the Supt. Grove Place. Authorised Persons present gave reports. A new member was elected. Matters of minor importance were dealt with and the meeting adjourned after the singing of the National Anthem.

Crooked River P.O. A. M. SMITH, Secretary.

Mt. Providence.—Meeting September 11th. Present: Messrs. Jas. Bailey, President, 13 other members and four visitors. The Committee appointed to raise a donation for the Secretary, G. S. Neita who resigned recently, reported that a Send Off was given him on Wednesday, 29th August. An address from the Officers of the Branch was presented. Authorised Person Gray reported two arrests with two convictions and four attempted arrests. Authorised Person Richards reported two attempted arrests and no convictions. Several matters were dealt with: on account of the recent rains the Instructor was unable to be present. The meeting came to its close by the singing of the National Anthem.

Woodhall P.O. P. D. GILFILLIAN, Acting Secretary.

Pleasant Valley.—Meeting 18th September, with Mr. C. Newman in the chair who gave a precis of the meeting held in May Pen the week before. Present also were Instructor Shirley and 17 members and Mr. Sawyers, a student of the Farm School. Apologies for absence were received from Messrs. Terrier, Dunkley and Haynes. The Instructor again did demonstration work in the district and during the meeting his address which was brimful of general information, was listened to with keen interest. It was decided by the Branch to extend invitations to the Hon. J. A. G. Smith, M.L.C. for the parish, Mr. H. H. Coote, Bee Instructor and Rev. C. A. Spencer, M.P.B., to attend next meeting. It was also decided to remind Dr. McPhail, M.O.H., of the necessity of immediate treatment of yaws which has broken out in the district and has greatly handicapped the attendance at the School. Minor matters were dealt with and the meeting terminated with The King.

May Pen P.O. MRS. A. A. FLYTER, Secretary.

TRELAWNY: Sawyers.—Meeting 27th August. Present were: Mr. C. M. A. Robotham, Instructor, Mr. D. J. Scott, President; 15 other members, 8 visitors and some school children. Correspondence was dealt with the Secretary was instructed to write to Mr. W. Harper Watson regarding the pig. The Instructor gave an address which dealt with poultry especially to interest the ladies and the selection of good corn seeds and other useful hints on the cultivation of corn. A vote of thanks was accorded to him. Two Authorised Persons reported all correct. As the Crown Lands were being surveyed the President advised all members who require portions to be prepared to make purchases. The question of the conditions of the Parochial Road leading from Sawyers Market to Hyde Hall, Friendship, and Discovery Mts. was taken up. The Secretary was instructed to write to the Parochial Board informing that body of the condition of the road and asking them to look after same. The Secretary was also instructed to get a Schedule of economic woods from the Parent Society. The National Anthem brought a successful meeting to its close.

Sawyers P.O. E. STANLEY ANGLIN, Secretary.

Spring Garden—Rock Spring.—Meeting 13.89.34. Present: Messrs. W. A. McDonald, President; F. W. Kelly, Instructor; ten members and four visitors. Arising out of the minutes of the previous meeting, matters re (a) coffee pulper, (b) Authorised Persons were dealt with. The meeting was addressed by the President and Mr. Goulbourne. The former spoke of the thriving district of Spring Garden, the latter in favour of having a coffee pulper. The Instructor's very inspiring address on (a) Intensive cultivation, (b) Borers destructive to bananas (c) use of mattocks, (d) fire, (e) milk and vegetables greatly benefited the people. A very profitable meeting adjourned after the singing of the National Anthem.

Albert Town P.O. L. C. COY, Secretary.

Ulster Spring.—Meeting 10th September. Present were: Rev. J. A. Edwards, presiding, Mr. F. W. Kelly, Instructor; many other members and visitors. It was decided to spend 10/6 in buying a bracket lamp to be used at meetings of the Branch. The Instructor gave a fine address on Citrus. He was given hearty thanks. Genuine regret was expressed when those present heard that the Instructor was to be removed from this area. It was felt that the members would only welcome his removal if he was going on promotion. It was decided that if the Instructor was really going the members of the Branch would say good-bye at a special meeting. The meeting adjourned after the singing of the National Anthem.

Ulster Spring P.O. I. C. WILLIAMS,
Secretary.

Wakefield.—Meeting September 4th. Present were: Mr. C. R. Browne, 1st Vice President presiding; Instructor, F. W. Kelly and a very good attendance of members and visitors. Corporal Chisholm was also present. Two Authorized Persons gave their reports. It was agreed to forward certain addresses to the Custos, Hon. Guy S. Ewen. It was resolved to point out to the Hon. Director of P.W.D. that the side walks in front of the shops and Market at Wakefield need to be concreted, that the square needed to be asphalted and lastly that a culvert is needed at Junction T. It was resolved to point out to the Trelawny Parochial Board: (1) that the fixed place of the pump of the Wakefield Pond is in a very bad state, and needs a dry wall, and the street also is in a bad condition (2) that the Board be asked to put the Ginger Hill Road on its Schedule and have it worked, to enable the land owners of Lower Wakefield to get out their products and lastly that the Board be asked to establish a Pound in the district at Mr. Bliss' holding. The Instructor gave a report on his week's Course at Hope. He then lectured on intensive cultivation and methods of working. A vote of thanks was accorded him.

Wakefield P.O. E. S. BLISS,
Secretary.

Troy.—Meeting September 25. Present: Messrs. Z. A. Lilly, President; F. W. Kelly, Agricultural Instructor; nine regular members, some visitors. Secretary read letter from Hon. Guy S. Ewen, M.L.C. for Trelawny re the Pantrepant Road. Instructor Kelly spoke on the harm done to the soil by fire, of the ravages to banana cultivation by Black Borers and the spread of Panama Disease. He told the meeting how to destroy Black Borers and to prevent the spread of Panama Disease. He received the thanks of

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the House. Meeting learned with deep regret of the coming departure of Instructor Kelly to another sphere of labour. He was presented with an address. He replied suitably. After the National Anthem the meeting rose.

Troy P.O. L. A. PARKER,
Secretary.

MANCHESTER.: Comfort Hall. Meeting 14.9.34. Present: Messrs. D. D. Palmer, President. 20 members and one visitor and Instructor Kelly. Arising from the minutes it was decided to make a second application to the Hope Farm, for four bags of cane plants. The cutting back of the sour orange trees on the Church premises was arranged for 12th October. Re the citrus nursery plot, given by Mr. D. D. Palmer, arrangements were made for fencing. The Instructor gave an interesting report on the general demonstration at Hope and also spoke on the necessity of cultivating citrus and vegetables. It was decided to obtain citrus buds from Hope as the varieties desired were not obtainable at Grove Place Farm. The meeting terminated by the singing of the National Anthem.

Comfort Hall P.O. W. A. WHITE,
Secretary.

Mizpah.—Meeting 10th September, 1934. Present: 10 members and eight visitors. Discussion on the proposed transfer of Instructor Thompson took place and it was decided to send to the B.O.M. (1) a letter of protest in the course it had taken (2) a petition praying for the retention of the services of the Instructor in this area. The Instructor spoke on Citrus. He informed members of the facilities offered by the Department of Science and Agriculture in fostering fruit of a standard variety. He advised members to take full opportunity of the facilities offered and to start planting early. 5 new members were enrolled. It was agreed to ask that Mr. J. T. Cousins be appointed an Authorised Person for this district. The meeting closed with the National Anthem.

Walderston P.O. H. M. DYKE,
Secretary.

Pratville.—Meeting held 10.9.34.—Present: Mr. S. R. Wesley, President; Mr. A. H. Darby, Agricultural Instructor, 3 other members and two visitors who were subsequently enrolled as members. Short discussion took place reintroduction of Soya Beans by branch but on the advice of the Instructor the matter was deferred for later consideration. The Instructor in his address dealt with the cultivation of (a) Short topped coffee (b) Flat-topped coffee (c) Citrus. Defects in cultivation were pointed out and remedies suggested. The blackboard was freely used for demonstrations. Lightening and thinning out were very strongly emphasized. A vote of thanks was accorded him.

Pratville P.O. D. E. DIXON,
Secretary.

Bellas' Gate.—Meeting 10th September. Present: Instructor Martin, F. N. Barrett, President; 125 other members, Juveniles and many visitors, some of whom became members, bringing the membership to a total of 165. The President welcomed Instructor, members and visitors in a brief and interesting manner and made some very encouraging statements in his opening remarks. Several matters arising out of the minutes dealt with. Letters about (1) the treatment of yaws, and (2) Parochial Dispensary were dealt with. Instructor gave an instructive address and a vote of thanks was accorded him. The House went into Committee to discuss the forthcoming Fair and the the visit of the Governor fixed for 4th October. 4 Authorised Persons reported all correct. Minor matters were dealt with. The meeting came to its close with the singing of the National Anthem.

Bellas Gate P.O. A. A. MCCURDY,
Secretary.

Springfield.—Meeting 17.9.34. The 1st Vice-President, Mr. A. S. Ross, conducted the meeting. The meeting expressed its desire to have Mr. S. Mighty appointed a District 'onstable. The Chairman spoke of the Authorised Persons who do not attend meetings S..ularly. The meeting expressed its regret in not seeing the Instructor. Several minor Presi..rs were dealt with and the meeting closed with prayer.

the mi..n Hall P.O. B. A. FORREST,
were dea Secretary.
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a coffee pul. John's.—Meeting 25th September. Present were: Mr. S. C. M. Bennett, (b) Borers ds. other members and seven visitors. Reports from Authorised Person were greatly benefit. Secretary and the President gave accounts of the transactions at the of the National A..ral Meeting of the Society. Special mention was made of the Protection Albert Town P.O. . The outing proposed by the Secretary was unanimously approval

and plans were duly formulated. It is proposed to launch an Association for the growing of vegetables for export purposes.

Point Hill P.O. L. J. DONALDSON,
Secretary.

ST. JAMES: Salt Spring.—Meeting held 12.9.34. Present: Mr. G. W. Anglin, President and 11 members. President reported the visit of the Supervisor of Instructors Mr. P. St. L. Bacquie, also Instructor W. D. Marr, to certain holdings. Resolutions on the following subjects were passed to be forwarded to the Parochial Board:— (a) The deplorable condition of No. 14 Lane in the district. (b) The insufficiency of protection of the water of the Public Tank from contamination. (c) The erection of a standpipe and trough at Green Pond, as was promised by the Board. It was decided that a letter be sent to the proper authorities through the Board of Management, indicating the bad condition of the Salt Spring Ironshore road, and asking that at least that section leading up to and bordering on the Ironshore Estate, be put in order. The question of affiliation with the St. James Branches Affiliated was deferred. The meeting was brought to a close by the singing of the National Anthem.

Montego Bay P.O. LLEWE. E. DILLION,
Secretary.

PORTLAND: Craigmill.— Meeting held 5th September. Present: Messrs. J. Lowe, President; D. E. Baugh and L. Lawrence, 1st and 3rd Vice-Presidents; D. A. Jones, Instructor; seven other members and one visitor. Correspondence was read and discussed. The report of the delegate to the recent Half Yearly General Meeting which was deferred from last meeting was given in part. It was decided to further defer the the balance as it was growing late, and the House desired to receive the full report. The Authorised Persons had nothing to report. Their equipment was in good condition. The Instructor, who spent the previous portion of the day in visiting the holdings of several persons, and budding several Seville orange trees, informed the House of the manufacture of ham and bacon in the City and asked for a census of the pigs in the districts covered by the Branch. Mr. S. Baugh was asked to look after this. It being late the meeting was brought to a close with the singing of the National Anthem.

Buff Bay P.O. REV. T. LAWRENCE,
Secretary.

Balcarres.—Meeting held 26.9.34. Present: J. O. Baugh, 1st Vice-President; presiding, Messrs. G. R. Graham and D. A. Jones; Agricultural Instructors; 13 members and 7 visitors. Apologies for absence were submitted. As matters arising from the minutes, Mr. D. L. Jackson reported having only ten pigs in his district. The Instructor asked that others give their report at next meeting. The President exhibited a beetle known as the Fiddler, which he caught in his Citrus Plot, eating the leaves, also Banana Borers These the Instructor said should be destroyed whenever they are eccountered. At this juncture Mr. Ewart, a member of the Jamaica Yaws Commission, was introduced and spoke on the subject of yaws. He said the Yaws Commission started work at Bath, St. Thomas in 1932 then they went to St. Mary and now they were in Portland. He was glad to say in the different parishes very good co-operation was got. He spoke at length on the subject and a vote of thanks was accorded him. Instructor Jones, who all day was in the district demonstrating on various holdings, spoke strongly on the necessity of destroying insects that are harmful to plants, asked that no ruinate be kept around the holdings also that banana trunks should be properly chopped up to prevent borers gaining lodging places in them. Mr. Graham also spoke on "The bad handling of our Produce." He said he was appalled to see how many stems of bananas and how many grape fruits were being thrown away or rejected through bad handling. He stressed

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the proper handling of citrus fruit as prescribed by the new Regulations. Advised picking of cherry ripe coffee for the riper the coffee the heavier it weighs. A vote of thanks was conveyed to both Instructors. Two Authorized Persons present reported all in order. After other matters were dealt with, the meeting which was voted a most instructive and interesting one, terminated.

Balcarres P.O. (MRS). ADA V. NESBITT. Secretary.

Other Reports Received.

Branch.	Date of Meeting.	Attendance.	Business.	Secretary.
Portland.				
Belvedere	9.9.34	10	Road. Authorised Persons. Addresses by Messrs. Arthur and James Lowe.	L. C. Blair.
C averty Cottage	8.9.34	16	Yam Competition. Colthirst Road. Authorised Persons. Address by Instructor Jones.	W. T. McKay.
Fellowship	5.9.34	..	Grape fruit plants. Manufacture of pig products. Authorised Persons. Juvenile Branch. Address by Instructor G. R. Graham.	Mrs. K. V. Corrie
Westmoreland.				
Grange Hill	27.9.34	14	Linton Pen Land Settlement Scheme. Authorised Persons. Timber plants.	C. C. Campbell.
Trelawny.				
Duncans	18.9.34	10	Demonstration Plot. Meetting at Spicy Hill. Addresses by Mr. Hugh Charley and Instructor Robotham.	L. V. Sloley.
Deeside	5.9.34	13	Show. Billy Goat. Giant Plantain suckers. Authorised Persons. Address by Instructor Kelly. Road	E. Morle.
St. Catherine.				
Kentish	24.9.34	Very large	Address to Hon. T. J. Cawley and reply by Mr. Cawley. Address by Mr. Baxter, Secretary J.A.S. Entertainment by School children.	S. W. Thomas
St. Mary.				
Epsom	5.9.34	10	Land Settlement Scheme. Authorised Persons.	F. R. Edwards
Marlborough	25.9.34	18	Authorised Persons. Address by Instructor Henderson.	D. Aug. Ford.
St. Elizabeth.				
Pepper	19.9.34	18	Show. Peanut Competition. Addresses by Instructors Lynch and Virtue.	M. A. Atkinson
Springfield	7.9.34	17	Show. Corn. Small Stock	J. A. Woodstock
Brompton	27.9.34	..	Juvenile Branch. Mail Service. Road. Savings Bank. Billy Goat.	E. A. Watson
Manchester.				
Pike	12.9.34	..	Small Stock. Panama Disease. Savings Bank. Address by Instructor Thompson. Transfer of of Instructor Thompson.	I. E. R. Green

THE JOURNAL

OF THE

Jamaica Agricultural Society.

The more people do the more they can do; he who does nothing renders himself incapable of doing anything; while we are executing one work we are preparing ourselves for undertaking another.

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BOARD OF MANAGEMENT.

The regular monthly meeting of the Board of Management of the Jamaica Agricultural Society was held at the office of the Society 11 North Parade, Kingston, on Wednesday, the 3rd October, 1934, at 11.30 a.m. There were present: Hon. T. J. Cawley, First Vice-President, presiding, Hon. A. C. Barnes, Director of Agriculture, (*ex officio*), Hon. P. W. Sangster, Messrs. Sidney Barton, C. O. Cover, U. Theo. McKay, H. A. L. Simpson, O.B.E., W. H. W. Westmorland, and T. R. Williams; Mr. P. St. L. Bacquie, Supervisor of Instructors and Glaister Baxter, Secretary. Mr. T. P. V. McDaniel attended during the course of the meeting.

Apologies for Absence—

Apologies for absence were submitted from Messrs. H. E. Lewis and W. Harper Watson.

Confirmation of Minutes of the previous Meeting—

A copy of the minutes of the previous meeting having been sent to each member of the Board, they were taken as read, and on the motion of the Director of Agriculture, seconded by the Chairman, they were confirmed.

Matters arising out of the prevoius Minutes—

(a) *Statement by the Secretary* was submitted as follows:—

Gentlemen:

Arrangements have been made for the transfers of Instructors Thompson, John Graham and Kelly to be effective on the 1st of November.

Correspondence consequent on the deliberations of the Board at their last meeting have been carried through.

(Sgd.) GLAISTER BAXTER,
Secretary.

(b) *Replies to question from Mr. Watson re Native Cornmeal.*—The Secretary stated that in regard to this matter he had circularised all the Parochial Boards but had not yet received all the replies to his circular.

It was decided to defer this matter to the next meeting.

(c) *Mr. Williams' Motion re Co-operative Movement.*—A letter from Mr. McDaniel was submitted requesting that this matter be held over until later in the day as he wished to be present during the discussion to put his views before the meeting.

This was agreed to.

(d) *Mr. McKay's motion re £25 to encourage the growing of White Yams in Clarendon.*—Mr. McKay moved the following:—

"That the sum of £25 be placed on next year's Estimates of the Society for the purpose of encouraging the growing of White Yams in the parish of Clarendon."

Mr. McKay said the white yam was liked by nearly everyone and it was dying out in Jamaica. It was thought by many that it could not be grown successfully except on new forest land, but he understood that with good manure and proper tilliage it could be grown to advantage.

His reason for suggesting that the matter be confined to Clarendon was that he could give it some oversight.

He suggested that a Committee consisting of Major A. R. Moxsy, Instructors W. L. Shirley and A. L. Virtue, Mr. E. Burton, (a progressive small settler), the Secretary of the Society and Mr. McKay as Chairman, be appointed to make the necessary rules and regulations.

Mr. Cover said he would second the motion provided that the words "parish of Clarendon" be deleted and the words "parishes of Clarendon and St. Ann" be added, and also that the personnel of the proposed Committee be more confined to the Board of Management as doubtless it would later govern other parishes beside Clarendon.

Mr. Williams seconded the motion as it stood.

There was some discussion on the subject and Mr. Cover moved that the resolution be amended to read:—"That a sum be placed on next year's Estimates of the Society for the purpose of encouraging the growing of white yams."

This was seconded by the Chairman.

Mr. Williams said that for years the subject of white yams had not been mentioned at the meetings of the Board and now that Mr. McKay had come forward with a proposal that a Competition be run to revive this industry be thought the resolution should be readily accepted and Mr. McKay given a free hand to carry through the experiment.

The Chairman put the amended resolution to the vote and this was carried, four members voting for and two against it.

The original resolution was then put to the vote and lost.

(e) *Secretary's Report on Bee Instructor's Travelling Equipment.*—The Secretary stated that as directed by the Board at their last meeting, he had inspected the Bee Instructor's travelling equipment and found that it was quite usable though not in the very best condition.

(f) *Report from Supervisor re Ginger Hill School Exhibition and Fair.*—The Secretary stated that Supervisor Bacquie investigated this matter and found that it was not an agricultural venture in the true sense of the word. The application for monetary assistance had been withdrawn. A Juvenile Branch had however been formed in the district, and it was proposed to hold a Juvenile Show next year.

The Chairman said that as the number of Juvenile Branches was increasing it was necessary for rules and regulations to be made to govern them. No action was however taken.

(g) *Resolutions referred from Half-Yearly Meeting re protection of Native Industries, Poultry, Cattle and Dairy, and re admission duty free of Agricultural Implements, Livestock and Dairy Equipment.*—The Secretary stated that he had collected data with reference to importation of articles that would come under these heads, and had circulated the information to members of the Board.

The Director of Agriculture said that the Government had recently appointed two Committees to go into the cattle and dairy industries and the Board of Management was represented on both these Committees.

In due course notices would be published in the Press asking interested parties to make their representations. Mr. Barnes suggested that the Board should make representations at the proper time on these subjects and if possible nominate one or two of its members who were not members of the Government Committees to submit their views.

With regard to the poultry industry there was a certain protection that could be invoked against the introduction of the birds used for the table, but he did not think the importation of pure bred day old chicks from America should be discouraged as it was a means of introducing fresh blood. He did not think the stage had yet been reached where this was interfering with the local trade. Representations had been made against the importation of turkeys for the Xmas market but this importation had been resorted to because the local market could not take care of the demand. Such imported birds being almost immediately slaughtered there seemed to be no danger from the point of any disease being introduced.

He felt that the cattle and dairy industries would be taken care of although he had no idea what would be the recommendations of the Government Committees.

The suggestion of the Chairman that the Live Stock Committee be authorised to deal with these matters was agreed to.

(i) *Live Stock Subsidies: Letter from Deeside Branch.*—The Secretary read a letter from the Deeside Branch stating that the goat which had been recently subsidized by the Society had soon after its arrival in the district, died.

It was decided to refund the Branch the amount which they had contributed toward the purchase of the goat, if after investigation the Secretary was satisfied that there was no negligence on the part of the Branch in the matter.

Statement of Accounts.—

(a) *Statement for August.*—The Secretary stated that this had appeared in the minutes.

(b) *Statement for September* was submitted as follows:—

STATEMENT OF ACCOUNTS FOR SEPTEMBER, 1934.

Receipts.	Estimates. £ s. d.	Total. £ s. d.
To Subscriptions	175 0 0	118 7 10
Affiliation and Journal Fees	175 0 0	156 4 3
Advertisements in Journal	200 0 0	54 2 0
Bank Interest, etc.	10 0 0	5 1 11
Miscellaneous	10 0 0	..
Bee Industry Sales	30 0 0	22 8 5
Sales Department Profits, 1934-35	400 0 0	..
Government Grant	9,500 0 0	5.541 14 4
Grant for Beekeeping Industry	500 0 0	250 0 0
Appropriation from Sales Department and Surplus	516 15 0	
	£11,516 15 0	£6,147 17 9
Balance from 31st March, 1934	..	1,877 4 8
Nethersole Presentation Fund	..	0 2 0
Entrance Fees Holdings Competitions	..	3 7 0
Refunds of Advances	.	320 0 0
Hire of Show Equipment	..	9 14 0
Shows Account: Deposits and Refunds	..	10 5 0
Seeds Trading Account	..	1,911 10 11
	..	£10,280 1 4
Less Expenditure (per contra)	..	8,616 7 3
Balance		£1,663 14 1

	£	s.	d.	£	s.	d.
Cash in hand ..	32	2	5			
Cash at Barclay's Bank Current A/c	157	4	4			
Cash at Barclay's Bank Deposit A/c	1,000	0	0			
Cash at Royal Bank of Canada Deposit Account	325	0	0			
Cash at Royal Bank of Canada Current A/c	149	7	4	1,663	14	1

Expenditure.	Estimates.			Total.		
	£	s.	d.	£	s.	d.
By Personal Emoluments:						
Secretary and Office Staff	2,014	5	0	1,020	9	0
Instructors' Salaries	7,482	10	0	3,882	13	4
Instructors' Course at Hope	125	0	0	84	2	9
Instructors' Contingencies	100	0	0	64	8	5
Secretary's Office and Special Travelling	100	0	0	74	19	1
Printing and Stationery	100	0	0	78	6	4
Printing and issuing Journals and Reports	750	0	0	343	19	5
Rent and Rates	58	0	0	28	10	5
Rent of Telephones	27	0	0	13	6	8
Postage and Telegrams	10	0	0	5	7	10
Office Furniture, Repairs	15	0	0	9	7	4
Incidentals	50	0	0	25	0	6
Auditor's Fees	25	0	0	25	0	0
Library Books	10	0	0	10	1	2
Experiments and Livestock Subsidies	100	0	0	38	4	8
Show Equipment: Repairs	10	0	0	3	6	9
	£10,976	15	0	£5,707	3	8
Beekeeping Industry	500	0	0	290	7	6
New Office Equipment	40	0	0	35	7	2
	£11,516	15	0			
Shows and Show Equipment	..			12	7	6
Gratuity (Mrs. Barclay)	..			29	0	0
Advances to Instructors	..			435	0	0
Nethersole Presentation Fund	.			9	0	0
Holdings Improvement Competitions				194	1	8
Local Competitions				6	11	7
Plant Diseases Control				26	10	0
Seeds Trading Account	..			1,870	18	2
				£8,616	7	3

(Sgd.) GLAISTER BAXTER,
Secretary.

(Sgd.) DONALD MACDONALD,
Accountant.
3.9.34.

In regard to this Mr. Cover remarked that it was pleasing to note that £156 out of an estimated £175 for affiliation and Journal fees had been collected during the past six months, and £118 out of an estimated £175 for subscriptions.

In answer to a question from Mr. Cover as to what had become of the monies that the Board had decided to refund to the Government on account of the grant provided for seeds and plants for hurricane relief, the Secretary stated that the account had just been closed and the amount in hand would be forwarded to the Government shortly.

Questions.—

(a) *Mr. McKay re Weather Disturbance Messages.*—The following questions from Mr. McKay and answers prepared by the Secretary were presented:—

QUESTIONS.

1. What is the total amount of expenditure in connection with the Weather Service during the hurricane season in sending out weather disturbance news to persons
(a) in the Government Service?

(b) not in the Government Service during the financial years ending 1930-31 1931-32, 1932-33, 1933-34?

2. What would be the total expenditure involved in sending notices of weather disturbances during the hurricane season to—

(a) members of the Board of Management and

(b) Justices of the Peace, residing within one mile from a telephone or telegraph office?

3. Seeing the value of such announcement to individuals and taking into account the value of the services rendered the island by the persons named, will the Board of Management urge upon the Government the necessity of getting a free service of such notices to members of the Board and Justices of the Peace living within the distance indicated?

REPLIES TO MR. MCKAY'S QUESTIONS.

Answers to Questions 1 and 2.—

No separate accounts of the costs of the transmission and delivery of hurricane warnings issued through the Postal Department is kept. It is therefore impossible to answer the questions.

It is impossible to get any accurate estimate as to costs for delivering notices of weather disturbances to members of the Board of Management and Justices of the Peace, as such costs are contingent among other factors on the number of weather warnings occurring during any given year.

The Postmaster for Jamaica advises that porterage would be 6d. per mile from the office of delivery.

Answer to Question 3.

A resolution on the lines of the question is necessary to get the Board of Management, a decision in the matter.

(Sgd.) GLAISTER BAXTER,
Secretary.

(b) *Mr. Cover re Panama Disease in St. Ann.*—Mr. Cover submitted the following question for the next meeting of the Board:—

"Would the Director of Agriculture be favourable towards representation for the treatment of Panama Disease by the one-root system in the parish of St. Ann?"

Notices of Motions.

(a) *Mr. McKay re Post Office at Johns Hall, (Clarendon).*—Mr. McKay moved the following resolution:—

"That in view of the growing importance of John's Hall in the parish of Clarendon from an agricultural standpoint, the Board of Management of the Jamaica Agricultural Society urges upon the Government the necessity of erecting a Post Office in this district to facilitate the people and those of the surrounding districts."

Mr. McKay said he did not think it necessary to labour the point. John's Hall was about seven miles from Frankfield and was a very thickly populated district.

The resolution was seconded by Mr. Westmorland and carried, and the Secretary instructed to forward same to the Postmaster for Jamaica.

Office.—

(a) *Secretary's Report on travelling for September* was submitted and noted.

(b) *Secretary's visit to Mid-Clarendon.*—Report by the Secretary on his visit to Mid-Clarendon was presented. The Secretary stated that this report was in circulation to the Board.

It was decided to defer this matter pending the return of all the papers to the office.

(c) *Leave of Absence.*—The Secretary stated that he had granted sick leave to C. A. Crearer, the Seeds Clerk, as from the 12th to the 24th September, on his presenting a Doctor's certificate.

This was noted.

Communications.—

(a) *Letter from C.S.O. re additions to Praedial Larceny Law.*—Letter No. 1313/34 of date 14th August, 1934, was submitted stating that

"Pepper Leaf Sweetwood, "Burn-nose or Wild Ackee" and "Prickly Yellow Wood" had been added to Schedule A of Law 4 of 1909.

This was noted.

(b) *Letter from St. Elizabeth Branches Associated re Account for printing.*—Letter from the St. Elizabeth Branches Associated was presented requesting that the sum of 7/6d. paid for the printing of circulars issued by that Association be written off.

After some discussion the matter was voted on and by a majority obtained by a casting vote from the Chairman, it was decided that the request be not granted.

The Secretary was directed to make the necessary collection.

The Board then went into Committee to consider the purchase of premises adjoining the office, viz., 10 North Parade.

On the resumption the following resolution was moved by Mr. McKay and seconded by Mr. Williams:—

"That the Board approves of such action to be taken by the First Vice-President and the Secretary in conjunction with the Government for the acquisition of premises, 10 North Parade, Kingston, and that they be authorised to make such advances as the funds of the Society will allow for the purpose."

This was put to the vote and carried, Mr. Simpson voting against it. Messrs. Cover and Barton did not vote.

Motion re Co-operative Movement.—Mr. Williams moved the following:—

"That the Jamaica Agricultural Society declare its support of the Co-operative Movement in Jamaica."

Speaking on the resolution Mr. Williams said that it was with some surprise he had learned at the last meeting that the Society was neutral towards this movement. It was because he believed that the co-operative movement was typical of all progressive countries that he had brought the resolution forward. He thought it necessary for the Society to declare its support of the movement. He thought that all existing co-operative organizations in the island and future ones should look to the Society for support, advice and assistance in all ways which the Society could afford. He did not expect any opposition to the resolution.

The Chairman seconded the resolution.

Mr. McDaniel said he did not think anyone could say he was not a co-operator. He was a member of more than one co-operative association, but he did not think the Society would be doing a wise thing to declare itself in the manner suggested by the resolution. The matter was of such vast importance that he thought it should be decided at a Half-Yearly General Meeting after having been submitted to the Branches for discussion.

Mr. Cover suggested that the resolution be amended to read:—

"That the Jamaica Agricultural Society declare its support of Co-operative Movement in Jamaica."

That, he said would allow the principle of support and leave out differences of opinion on individual associations.

The Director of Agriculture said he felt that it would be a very proper thing for the Society as a body to declare its adherence to co-operative principles. Whether it was proper for the Board of Management to act on behalf of the entire Society without a mandate from the General meeting, he was not in a position to say. Such a declaration however would be a declaration of policy. He would speak rather from the point of view of the small agriculturists of the island whom the Society was desirous of assisting; and amongst the ways in

which the Society could help those people was in regard to the disposal of their produce which he believed could best be arranged through a system or systems of co-operative marketing. For that reason alone he thought the Society would be doing a wise thing to encourage the co-operative movement in every possible way. It might be said that the co-operative movement of Jamaica was a certain organization, but he thought the resolution visualized the co-operative movement as a whole in every aspect. He had taken the opportunity from time to time at meetings of Associated Branches and at the Board meetings of speaking of the way in which agriculturists could be assisted to co-operate quite apart from the already existing co-operative organizations here. He felt that the teaching of co-operative principles should form part of the teachings of the Society. The first Report of the Planning Committee which was unanimously adopted earlier in the year, contained a recommendation that among the subjects for lectures at Branch Meetings should be included the principles of the co-operative movement. If it was in order for the Board of Management to declare its policy at this meeting, he was heartily in favour; the Society should declare its support of the co-operative principle without any reference to any particular co-operative association in Jamaica.

Mr. McKay said it was somewhat difficult for him to speak on the matter as he did not grasp the full significance of the resolution. He thought they should go very carefully, remembering that the Board represented the general taxpayer from whom its revenue was obtained, and many of the members of the Society might be opposed to co-operation as it obtained in Jamaica. If they did not go carefully they might be misunderstood and cause some disaffection in the Society. The duty of the Society might be to prepare the ground irrespective of any reference to any particular phase of the island's economic life. If in preparing that ground and when it was well prepared there should come out of that preparation, or spring forth germs that would make for co-operation, then they could well go ahead. The work of the Society at Branch Meetings had laid the ground for co-operation. The greatest amount of care should be exercised in accepting this resolution. He did not wish to see anything done that would make the Society partisan. The Society should be absolutely catholic. Many people were saying that the co-operative movement in Jamaica in connection with certain industries had not been an outstanding success. He was not saying that such a statement was right or wrong, but it had been made by persons in the community whose opinions were worth something. He would advise Mr. Williams if possible to withdraw his resolution until a more opportune time, after more mature consideration had been given to it, otherwise they might find that they offended certain sections of the community whose attitude if not in favour of the Society would be deterimental to its work. They had made rapid strides during the last two years and enrolled a number of new members and it seemed to him rather dangerous to pledge those members in favour of the co-operative movement in Jamaica, without knowing their views on the subject.

Mr. Simpson said the Agricultural Society had had too long and useful a life for them to do anything to imperil it by attempting to accept this resolution which dealt primarily with a subject which was being debated for good or evil at the moment. They could not afford to prejudice the usefulness of the Society by taking sides on this subject. If the resolution was worded:—"That the Jamaica Agricultural Society declares its approval of all just and proper co-operative principles

calculated to promote industry and commerce in Jamaica," it would be inoffensive and would only be expressing what they had been endeavouring to do in the past and from the very inception of the Society. They knew that throughout the island there were expressions of opinions as to the co-operative movement in Jamaica. Many people had expressed satisfaction and some dissatisfaction, and some declared that one part of the movement had gone out of existence. They knew that the co-operative movement in this island only referred to one thing, and this resolution was linking itself to something which the public was discussing. They only accepted things which could be carred out for the welfare of the community and the agriculturists and labourers, and the moment anything that divided that goodwill was let in they would be doing something that was wrong for the Society.

Mr. Sangster said he thought it was a recognised fact that any country without co-operation was out of it. The industries of the world were being run on co-operative lines, and it was the countries that were co-operating that were making headway. The officers of the Society were going about the country and telling people to produce more crops; one of the charges that had been levelled at the Society was that they preached production but rendered no assistance for the marketing of those same products. That was a very logical grievance. He was not blaming the Society because up to the present time it had not been in a position to give such assistance. In the case of an industry like the corn industry there was no rivalry; representations asking for help had been made and the Society had made a move, and at the present time the Director of Agriculture was going into the matter of storage so as to obtain better prices. The moment it came however to an organized industry where rivalry and dissatisfaction existed they made the mistake of saying that because rivalries existed they were afraid of them and would not support the idea of co-operation. If the Agricultural Society was not to accept and approve and adopt and give assistance to the co-operative system which was an endeavour to give to the producer better prices, then he would ask what the Society existed for. Were they to stand still in this matter because they thought offence would be given? Although mistakes had been made in the Jamaica Banana Association or in the Coconut Association, that was no reason why they should say that the principle involved was not correct. He failed to see why they should not foster every co-operative movement since everyone was eligible to participate. That being so he saw no objection to the Society not only expressing its approval, but fathering and mothering the movement in a whole-hearted way.

Mr. Cover said he would withdraw his amendment in favour of Mr. Mr. Simpson's.

Mr. Williams in reply to the arrguments against the resolution said the opposition was based on the apprehension that the "Co-operative Movement" meant "The Jamaica Banana Producers' Association." That was not so and there was no necessity for opposition to the Banana Association to be brought against the resolution. It was time that the people of Jamaica recognised the co-operative principle and fell in line with countries like New Zealand and Denmark. Co-operative marketing associations and purchasing associations were a distinct development to organised agriculture, and immediately agriculture became developed there would be competition which would prevent the smaller man from obtaining something like a remunerative price for his produce; without co-operative marketing the small man would always be in the hands of the larger man and the speculator. As a community they possessed

sufficient organizing ability to manage any co-operative organization and they were sufficiently civilized for members of any such organization to keep faith. With such conditions, co-operation was the natural result, and was the line of least resistance. It was astonishing at that stage in the history of Jamaica to find the principle of co-operation being treated as a partisan matter. It was no more a partisan matter than the use of agricultural forks and fertilizers. He was asking the Board to adopt an approving attitude towards co-operation and make such a declaration which had not been previously done. The Society was well adapted to preaching the subject. It was the organization for propagating information of that sort and rather than blowing neither hot nor cold, the Society should be one of the open critics if there was anything to criticize. It was their business and it would be a disgrace if they kept away from the subject because rivalries existed. He was asking that his resolution be supported.

The Chairman put the amendment to the vote and it was lost.

The original motion was then put to the vote and carried, five members voting for and four against it.

The meeting then adjourned for luncheon.

On the resumption there were present: Hon. A. C. Barnes, Director of Agriculture, who was voted to the chair, Messrs. Cover, McDaniel and McKay; the Supervisor of Instructors and the Secretary.

Letter from Tourist Trade Development Board re Advertising Stamps.—The Secretary read letter from the Tourist Trade Development Board announcing the issue of stamps for the joint purpose of advertising Jamaica and of raising funds to augment the financial resources of the Board to enable it to adopt more publicity measures for the development of the tourist trade.

It was agreed that One Pound be voted for the purchase of such stamps to be placed on correspondence going abroad.

The Hon. T. J. Cawley here joined the meeting, took the chair, and as there was up to then no quorum the business done so far was confirmed.

Industries.—

(a) *Memo from Stony Hill Branch re Wet Sugar.*—The Secretary read memorandum from the Stony Hill Branch, asking that action be taken in a matter affecting the wet sugar industry. The memorandum stated that the price of a cane mill in pre-war days was Ten Guineas, during the war, £22 and at the present time, £24, whilst the prices of iron and steel had declined since the war. This it was stated kept up considerably the cost of production of wet sugar which in pre-war days obtained 5/- per tin, during the war 20/- and to-day it brought only 6/- per tin. The price of a mill had advanced 128%, the price of a plough 150% whilst the price of the sugar had been practically stationary. The memorandum also requested that a sample of cane syrup as manufactured in Florida be obtained.

The Secretary was instructed to make the necessary enquiries as required by the memorandum.

(b) *Regulations re transhipment of Honey and Beeswax in island ports.*—Letter from the Director of Agriculture was submitted covering a copy of the Regulations made by the Governor in Privy Council in regard to the transhipment of honey and beeswax in island ports.

The Secretary said the Regulations would be published in the next issue of the Journal.

Shows.—

(a) *Mid-Clarendon, proposed for Easter Monday,* 1935.—Letter from the Clarendon Show Committee was submitted, advising that a Show was being arranged for Easter Monday, 1935, and asking the Board's approval of the date.

This was approved.

Instructors Committee Report.—

The Chairman moved, seconded by Mr. McKay, that the standing orders be suspended to admit a report of a meeting of the Instructors Committee w'ich sat that morning. The motion was carried, and the following report was submitted:—

3rd October , 1934.

The Board of Management:

Gentlemen,

Your Instructors' Committee met at 10 a.m. to-day and recommend as follows:—

1. That the Secretary's request for £50 be authorized for Supervisors' travelling in the Eastern Districts for the remaining six months of the financial year. The letter is herewith referred to the Board.
2. They recommend that the Government be asked to place a sum on their Estimates for the coming financial year for the erection of a Dehydrating Plant with storage bins for the processing and storage of grain to be placed under the control of the Jamaica Agricultural Society, for the improvement of the corn industry in the Island.
3. That Assistant Instructors Henderson, Jones, Byles and Virtue be confirmed in their appointments, but that the matter of their salaries be deferred until the next meeting of the Board when the Secretary will submit boundaries of their districts and assignments; such change of salaries to be retrospective as from 1st October.
4. That the affiliation of the following Branch Societies be approved:—

Wilmington (St. Thomas), Alexandria (St. Ann) (resuscitated), Kings Whitehouse (Westmoreland); Victoria (St. Catherine).

5. That Instructor Shirley's leave be postponed from October to December as has been arranged with the Secretary.

(Sgd.) GLASISTER BAXTER,
Secretary.

On the motion of Mr. Cover, seconded by Mr. McDaniel, the report was adopted.

Branches.—

(a), (b) and (c). *Letters from Comfort Hall, Mizpah and Christiana Branches* were submitted on the subject of the transfers of Instructors Kelly and Thompson from the districts.

After discussion it was decided to inform these Branches that the transfers were made due to the exigencies of the Services and in the best interests of the Society.

(d) *Resolution from the Lethe Branch* asking that a Railway Siding be established at Level Crossing, in the parish of Hanover, was submitted and the Secretary was instructed to forward same to the Director of the Railway.

(e) *Reolution from the Salt Spring Branch,* asking that the Salt-Spring-Ironshore Road be put in order, was presented and the Secretary was directed to forward same to the Parochial Board of St. James.

(f) *Resolution from the Seaforth Branch* in regard to a Land Settlement proposal on the Buckingham property in St. Thomas was submitted, and the Secretary was directed to forward same to the Colonial Secretary with a strong recommendation from the Board of Management, and to forward a copy of the correspondence to the Hon. R. Ehrenstein.

New Members.—

On the motion of Mr. Cover, seconded by Mr. McDaniel, the following were elected to membership of the Society:—

N. W. Hughes, Mandeville.
Mrs. G. C. Gunter, "Norwood," Barbican Road, Halfway Tree.
R. O. Terrier, May Pen.
Stafford S. Morrice, Chapelton.
C. A. Neita, Ulster Spring.
Dept. of External Affairs, Wellington, C1. N. Z.
Miss Irene Gordon, 16 Tarrant Lane, Halfway Tree.

Other Business.—

(a) *Application from Local St. Mary Association re loan of Tent Covers.*—Letter was read by the Secretary stating that an Agricultural Show for Boy Scouts was being organized by the St. Mary Boy Scouts Local Association and asking that the Tent Covers be loaned for the occasion.

The Board regretted that they could not grant the request in its entirety but decided to hire the Tent Covers at half the usual cost on the usual terms.

(b) *Resolution from Font Hill Branch re Land Settlement.*—This resolution dealt with the same property referred to by the Seaforth Branch and the Secretary was instructed to forward it to the Colonial Secretary along with the other resolution on the same subject.

(c) *Resolution from Brittonville Branch* re the erection of a new school room in the Britonville District, was submitted, and the Secretary directed to forward same to the Director of Education.

(d) *Letter from the Instructors Association* asking the Board to receive a deputation in regard to the recently retired Instructors, was presented.

The Secretary was instructed to find out from the Association the details of their proposed representations.

(e) *Darlistion Show: proposed for Easter Monday* 1935.—Letter from the Darliston Branch was submitted asking the approval of the Board in regard to their Show proposed for Easter Monday, 1935.

The date of the Show was approved, but it was noted that due to applications already made for show equipment to be supplied for two All-Island Shows at Alexandria and Mid-Clarendon, no equipment could be reserved for the Darliston Show.

The meeting then adjourned to Wednesday, 7th November, 1934, at 11.30 a.m.

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JAMAICA AGRICULTURAL SOCIETY.

TWO WEEVILS WHOSE LARVAE ATTACK THE ROOTS OF CITRUS PLANTS IN JAMAICA.

(By Mr. W. H. EDWARDS, D.I.C., F.E.S., Government Entomologist.)

Two kinds of weevils are found all over Jamaica feeding on the foliage of citrus trees.

The one commonly known as the Large Fiddler Beetle, Prepodes vittatus, measures from three-fifths of an inch to one inch in length. It is easily recognised by the red and pale green stripes which running lengthwise along the wing covers, adorn the upper part of the black coloured body.

The Small Fiddler Beetle, Pachnaeus litus, Germar, is much smaller in size, seldom measuring more than five-eighths of an inch in length. *The whole body of these brilliantly coloured weevils is light blue or* bluish green.

Though the adult insects cause a certain amount of damage by feeding on the foliage and flowers of the plants and also by chewing the epidermis of young fruits (such lesions resulting in unsightly rind scars when the fruits mature), the most serious injuries are *not done by the adults but by the grubs* which destroy the roots of the plants.

The life cycle of those insects comprises four stages:—

1. the egg,
2. the larva,
3. the pupa or chrysalis, and
4. the adults or beetles.

The larvae are those white plump legless grubs which are frequently found in the soil amongst the roots of citrus plants; they feed *on the bark of the roots* and also attack the stem of young plants *just below the surface of the ground.* These grups, by eating strips of bark from the roots, may, when numerous, completely girdle the main roots with the result that the flow of sap to the higher parts of the plants becomes arrested. The leaves of plants thus injured assume a chlorotic appearance, turn yellow and wilt. When the trees are still young the result of the attack may become rapidly disastrous, the plants being killed in a short time. With milder infestation their growth becomes so retarded that the plants assume a dwarfed and anaemic appearance.

Older trees having a well developed radicular system resist such attacks better, though they generally show symptoms of poor growth and yield little.

The damage caused by the larvae is, however, much more difficult to detect than that caused by the adults and generally remains unnoticed until it has progressed so far that the infested trees in cases of severe infestation begin to 'die-back.'

Remedial Measures:

When the adults of these insects are found in numbers in a grove or whenever trees begin to show signs of being attacked, measures should immediately be taken to control the multiplication of the pest'

Hand Collection of the Adults:

As the beetles are during the first five months of the year found in numbers on the foliage of the trees, they should be systematically collected and destroyed. This will prevent future severe infestation by the grubs.

When labour has been trained for the task, hand collection of the weevils hanging on the leaves of the trees is a cheap and effective method of control. On young trees this can be done very easily.

When the trees are tall or have thick foliage, the insects can frequently be collected 'en masse' by spreading large piece of cloth under the trees and afterwards shaking the foliage. As the weevils hang but very little to the leaves, they fall on the cloth and can thus be picked up in numbers.

Fumigation with Cyanogas:

Whenever searches amongst the radicular system of trees reveal the presence of the grubs, fumigation of the soil around infested plants will

On the top at the left:
Dorsal and side view of The Striped Fiddler Beetle, Prepodes vittatus.

On the top at the right:
Dorsal and side view of the Small Fiddler Beetle, Pachnaeus litus, Germar.

Bottom:
Leaves of citrus attacked by the adults of the Fiddler Beetles.

Note the narrow and deep indentations of the lesions. In the case of attack by Slugs or Caterpillars the eaten parts are much wider and rarely so deep.

have to be made and I recommend for this purpose Cyanogas at the rate of $1\frac{1}{2}$ to $2\frac{1}{2}$ ozs. per tree according to the degree of infestation.

Paradichlorbenzene as a deterrent:

In those patches found more heavily infested by the adults, as a deterrent against the grubs that will soon begin to hatch in numbers, Paradichlorbenzene can be applied as follows:

> The surface of the soil around the base of the trees is removed and the insecticide, which is a powder, is sprinkled at the rate of 1 oz. per tree in a continuous band eight inches from the trunk; a layer of soil about four inches thick is then thrown over the insecticide and packed with a shovel. The insecticide should not be put in direct contact with the tissue of the plants.

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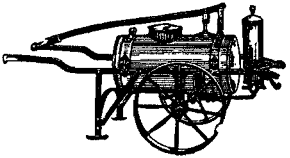

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EDITORIAL COMMENTS.

Protection and Free Trade.

Arguments for and against tariff protection of industries agricultural and otherwise, have lasted for nearly a cenutry. The controversy has been spirited, in many cases violent, but invariably inconclusive. We have seen Free Trade England prosper, yet eventually having to resort to tariff protection to save her industries, and have also seen the United States under tariff protection expand her manufactures, agriculture and export trade at a rate hitherto unknown to human endeavour; yet we find her lowering her tariffs in a few directions even now in a careful endeavour to restore her much reduced export trade.

The irony of the English Lancashire call for protection, the very birthplace of the free trade cult cannot have escaped the attention of many students of world affairs.

We cannot and do not claim to be specialists in political economy; but we cannot help thinking that after all whoever takes either tariff reform or free trade as political dogma is endowing both things with qualities they do not possess.

The subject generally has been of much interest to producers and manufacturers in Jamaica. At every turn the question crops up and industry after industry petitions to be assisted. Cattle and dairy products, corn, peas, potatoes, poultry, matches, biscuits and many others have travelled the same paths, some succeeding and others failing to achieve their desire. Some of our major crops, in fact nearly all of them, prosper through some form of local or Empire protection. These include, bananas, sugar and coconuts. Many of our minor crops are also heavily protected. These include, potatoes and corn. The protection of potatoes influences all native ground provision to a very great extent, a feature not often spoken of or appreciated.

We propose to point out certain features which we consider should be taken in account when a decision is to be made as to whether the protection of any industry is justified.

In considering oversea competition with our native products, it must never be lost sight of that to reach our markets they must carry the handicaps of freights and overseas traders' profits. Customs duty, if any, would be an additional handicap. Theoretically then costs of production being equal it should always be possible for native products to undersell imported stuffs.

Costs of production however depend on many factors. A few of the most important ones from the agricultural viewpoint are:—

1. The natural features of countries, which would cover soils, their topography, climate and population.
2. Relative standards of efficiency of production and the possibilities of the improvement of such standards.
3. Relative standards of living of the competing producers.
4. The effect that the protection of any one crop would have on any other producing industry.
5. The effect of protection or free entry of a commodity on the oversea protection of some other commodity we produce.

It is a well balanced consideration of these factors weighing each one as it concerns the commodity to be protected that we contend will produce the true answer to the question of whether any crop should be protected by tariffs or not.

Generalizing on these factors, Jamaica is usually at a disadvantage from the standpoint of large blocks of land that can be devoted to the

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specialised production of any one agricultural product, besides which the lands are very well sub-divided as far as individual ownership is concerned. These facts remove the cheapening effect that large capital enterprises and resulting mass production usually have on production costs; on the other hand our small farmer classes from the lack of overhead could produce and market thieir production at cheap levels, but organized marketing is required and it is very difficult to organize this numerous class of very small producers. Yet it should not be regarded as impossible. The possiblilities of the improvement of the existing standard of efficieney is of even greater importance as a factor for consideration than is the existing standard. For instance, many industries that could be fostered by protection but which are being carried on on very inefficient lines, need not only protection, but such protection could only be justified as a good public investment if the respor sibilities for doing everything that will make them efficient is fully realised by Government.

The unbridled competition with our people by producers whose standard of living is very much below theirs can of course have but one result., i.e., bringing the differing standards of living to one level. This from our viewpoint would naturally be undesirable and should be prevented.

The effect on other industries of protecting any given industry, is a problem merely of mathematics and reciprocal protection is mainly a political problem. These two last named factors can not therefore be discussed in a general way, rather they can only be considered on the merits of the special case. Assuredly then neither Tariff protection nor Free trade should be regarded as unerring political dogma.

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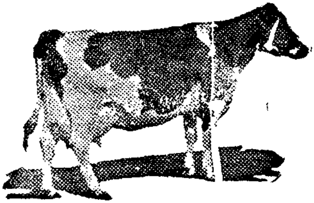

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DAIRY CATTLE BREEDING IN JAMAICA.

By T. P. Lecky.

(A Fourth-year Thesis for Course in Animal Husbandry at the Ontario Agricultural College, 1934.)

Acknowledgement.

The writer wishes to acknowledge his indebtedness to the Director of Agriculture, Jamaica, for his kind permission to use the Government Stock Farm Records; to the Headmaster of the Government Farm School, Jamaica, for his criticism; to Dr. MacArthur, Professor of Genetics, Ontario Agricultural College, for his criticism on the possibility of producing a tropical breed and to the Animal Husbandry Department, Ontario Agricultural College, especially to Professor Steckley, under whose direction this thesis was undertaken.

Introduction.

This thesis is undertaken in order to point out the necessity for developing the dairy cattle industry as a means of taking a part of the place played by bananas in the revenue of the island. Bananas, the main crop, is slowly giving way through the ravage of "Panama Disease" and after a hurricane the crop, for the following year, is greatly reduced. At such times the inhabitants suffer great hardship because the larger part of their income is lost.

Several other crops have been tried for years but none have shown that they are capable of taking the place of bananas. Sugar-canes and oranges lend themselves to labour-saving devices in cultivation, and because the island is so mountainous they will be at a disadvantage in competing with those from the large producing countries. At present the island is producing enough beef for home consumption and should likewise produce all the milk needed. There is a large demand for imported condensed milk.

This thesis has as its objective the main factors that influence the production of milk, such as feeds, breeding, and tick control. Owing to the wide scope that this subject involves, these are dealt with in a general way, with emphasis placed on the breeds tested, and the necessity for a tropical dairy breed, with suggestions as to its possibility.

The data presented on Dairy Cattle, where otherwise not mentioned, are taken from the annual Herd Books of the Government Stock Farm, Hope, Jamaica, for each year from 1911-1933. A general study has been made of the experiments in cattle breeding in India, and a review of the Annual Reports of the Research Institute, Pusa, India, from 1911-1932 is given.

There has been a large amount of work done on the different crops grown in the tropics, but that on livestock is very small, and a large percentage of it has not been based on research work. As an example one may cite the text books on Tropical Agriculture with hundreds of pages on crops and only a few on livestock.

Extent of Dairying in Jamaica.

Dairying is mainly carried on near Kingston, the largest centre of population in the island. There are other minor centres such as Montego Bay, Port Antonio and Mandeville. The milk produced is used largely as fluid milk, and the temperature all the year round is conducive to a high bacterial content, therefore the area from which

milk is drawn is limited without the use of refrigeration. The cost of milk is too high for the average housewife, thus limiting the supply. This is due in part to the low yields of the commercial herds and the high cost of concentrated feeds. Every effort should be made in order that it may be sold at a reasonably low price and thus increase the demand and supply. The milk placed on the market is unpasteurized and has to be boiled by the consumer. This lowers the food value, and its best flavour is lost. A better quality of milk is necessary which will require more intelligent workers and better paid, that they may have a direct interest in the sanitation.

With the high cost of milk on the market condensed milk has found ready sale. This has shown a general increase. The average for 1910-1914 was 2,900,000 lbs. while to-day much larger quantities are imported. The following figures show the amount and cost in 1930:—

United Kingdom	1,358,744	lbs	valued at	£38,264
British Possessions	1,971,117	"	"	62,071
U. S. A. ..	591,515	"	"	16,642
Other Countries ..	1,207,912	"	"	33,030
Total	5,129,318	"	"	£150,007
				—$750,035

Compared with our exports and imports of all commodities:

		(1)
Imports..	..	£5,823,037
Exports	..	4,075,473
Difference	..	1,747,564

Importation of condensed milk is nearly 43% of the difference between imports and exports for that year. With a high rainfall and pastures for the whole year, the island ought to be able to produce its own. It is expected that in the near future this will be accomplished as projects are under way with the investigation of its possibility. Condensed milk, being cheaper and can be kept longer, has become popular and the general public have developed the taste for it.

Butter is limited by the expense to produce it, in order that it can compete with imported butter. The bulk of the population cannot afford to use it every day and often when the special time comes, margarine butter is used instead because it is cheaper. A constant supply of cream of good quality is required to make butter. There is no factory in Jamaica, and the places that are producing it are doing so on the farm from their own herds.

The Island.

Jamaica is one of the West Indian islands, situated between 76° and 79° W. longitude, and 18° N. latitude passes through the centre. It is 90 miles from Cuba, five days' sailing from New York, and ten days in the Lady boats (C. N. Steamships) from Montreal. The Blue Mountains run through the length of the island and sends off spurs to the sea. Jamaica has an area of 4,200 square miles and a population of nearly one million, 200 to the square mile, or one to every three acres.

The climate is equitable. Its average mean temperature is 78.7° F; (1) February 75.7° F and July 81.4° F, an average for fifty years. The annual rainfall for the island is 76.4 inches; the north-eastern section has as high as 160 inches; around Kingston the rainfall varies from 45-60 inches. There are wet and dry seasons; August to November are the wet months, and December to April the drought period; also July is fairly dry.

The island is covered by a luxuriant vegetation all the year round (except in places where drought is severe, which is limited only to certain parts of the southern section of the island). The chief crops grown are bananas, sugar cane, coconut, oranges, coffee, ginger, pimento, and cocoa. Of the 1,157,500 acres of land devoted to agriculture (1928), approximately 880,500 acres are under grass which is mainly for cattle production. Of a total of 117,500 cattle, (1) 108,200 are kept on large estates. These are mainly used for beef and draught purposes.

Difficulties to be overcome by Cattle Breeding.

Dr. *John Hammond (2) in his study of Dairy Cattle in the West* Indies, pointed out that the cause of degeneration in (Bos Taurus) Northern cattle is due to a sublethal infection of tick-fever (piraplasmosis) and a lack of protein feed. The three main factors that we have to face are: tick-fever, resistance to sun, and a lack of sufficient proteins in the feeds.

Tick Control.

'Tick Fever' of 'red water' is caused by an organism which is carried from one animal to another by cattle ticks. It is often fatal to imported cattle, and the native can carry the disease in a sublethal form, which often results in unthriftiness, and a lower milk yield. The organism attacks the red blood corpuscles, and in an acute attack the temperature rises and the animal passes a reddish urine, from whence the name 'red water'. The treatment is an injection of about 100 c.c. of trypan blue (an analine dye) into the jugular vein. The temperature generally falls rapidly and if the animal were not properly housed it takes a chill, which may result in pneumonia, which is many times the ultimate cause of death. This disease makes the importation of northern cattle a very risky business.

The only safe method of combating this disease is by the eradication of ticks. The methods used are based on its life history. In infested areas one would notice, on long-haired cows, especially on certain parts of their hide, thickly covered with the enlarged females. These fall off their host to the ground, crawl to some cool place and begin to lay. One female may lay as many as 5,000 eggs. In about nineteen days the eggs are hatched. These young ticks crawl up the nearest shrub and seize on the passing animal. The first moult of the tick takes from 5 to 12 days, and the second takes another 5 or 10 days. At this time they have reached sexual maturity and are mated. The female now remains in one position until she has been filled with blood and is about the size of a corn kernel, before she falls to the ground. In her feeding she penetrates the hide with her proboscis and uses her saliva as a lubricant. In this way the organism gains entrance to the blood stream of the animal. The amount of blood taken from the animal and the irritation of the skin is enough to affect its usefulness.

The two methods of eradication are the starving of the 'seed-tick' (young ones) while they are in the pasture, and by spraying or dipping. Places where rotation can be practised the cattle are removed from an infested pasture to a fairly tick-free one for several weeks. These 'seed-ticks' unable to get any food are starved to death. At this time the herd is brought back into the clean pasture and remain there for about fourteen days; then they are removed before any oung ones are hatched, and placed in a clean pasture. At the end of a few days those on the host will have fallen off. The herd is removed to a new locality

where they do not come in contact with ticks. These pastures should be put under cultivation. The difficulty with this method in Jamaica is the small area and because the ticks are carried on goats, dogs, horses, mules, and asses, and may be in this way carried from pasture to pasture. In U.S.A. clean areas are protected from re-infestation by other cattle, and the area each year is maintained, with the result that the tick-infested areas are pushing back farther south. Jamaica's difficulty lies in a peasant class, who keep a few cows and some with only a pig or a goat on only two or three acres, and they allow their cattle to stray along the fences of fairly clean places, thereby infesting them.

The method best adopted in Jamaica is dipping. Spraying was tried but it required too much of the human element and its results depends on the thoroughness at which the spray is applied over the surface of the body. The farmers with only twenty or twenty-five head find it very expensive to install a dipping-tank; yet this added cost which can be spread over twenty or thirty years will be paid for by the improvement the farmers will have as a result. Penkeepers who have large herds and can distribute the cost over a large number of units, have found it to be an added income to their property. The dip is composed of 3 lbs. Paranaph, 2 lbs. aresenite of soda, for every 100 gallsons of water added. It has this great advantage: that it is easily applied and easily tested. The construction of the tank can be accomplished by a mason and the plan may be had by application to the Department of Agriculture. It should be covered and sufficiently large so that the animals are compelled to be completely immersed. The time of dipping is usually every fortnight, but in badly infested areas it should be at least every ten days. When the farm is comparatively free, dipping may be as far as it is safe without new infestations taking place, for it affects the following day's yield. Farmers would be advised to allow small settlers adjoining them to dip their cattle regularly and free, to avoid being 'seeded' down with ticks. Unfortunately it has been found necessary not to clean the farm entirely as animals so produced under this condition are unable to live in areas that are infested, and therefore, the farmer is unable to sell breeding stock. A sub-lethal infection reduces the vitality of the animal and thus lessens its resistance to diseases.

Resistance to Sun.

The second great factor that influences the adaptation of cattle in Jamaica is the resistance to sunlight and high temperature. It will be noticed in the tropics that all native animals are dark skinned. The value for this is to filter out the violet rays of the sun. This is borne out by the fact that negroes under northern city conditions suffer from rickets more than the white man, because the violet rays which produce Vitamin D have been greatly shielded out. Again it has been noticed that white pigs get sunburnt in the tropics. Wallace (3) said that it was pointed out to him that a white skinned animal was hotter on the surface in India than the Zebra or other dark skinned animals in the heat of the day. He explained it by high absorption, radiation, and evaporation. A black skinned animal would naturally absorb more heat and black radiates more than white. In this case the Holsteins would stand up to the tropics.

It was noticed by Wallace that the natives drink a large amount of water, yet we do not find the large beads of perspiration as on the white man, which he attributes to the evaporation. We cannot deny

the fact that evaporation cools a body and it is the main source for reducing the temperature of the animals.

The methods that are used are housing the cattle in the hottest part of the day, and by the introduction of Zebu blood in the northern cattle. Housing only partially aids this as the heat still remains, though one can shield them from the direct rays of the sun. The length of time tbey should be kept under cover has not been estimated, but it is generally practised on the Hope Farm to put them in stalls or stanchions from 9 a.m. until 2 p.m. where they they are fed whilst standing there. The best method is to put in some Zebu blood along with the housing during the warmest part of the day for those in milk. Unfortunately this calls for cross-breeding. Nevertheless, if a cow is hampered in this way, her yield will be affected and her power of resistance to disease lowered.

Feeds and Pastures.

The outstanding difficulty met with in Jamaica in the dairy industry prabably is the lack of protein-rich feeds. The general deterioration, as noticed by Dr. Hammond, took place after the calves are weaned, especially in the large breeds of northern cattle. He said (2): "It is significant also that the smaller breeds show less signs o degeneration than the larger breeds; the larger breeds having a larger maintenance requirement have less surplus food-stuffs available for growth and production, and so suffer more in the ddevelopment of their form under poor feeding conditions than the smaller breeds." The vital organs are first nourished in a growing animal and the remainder of the nutrients go towards the body development; therefore, an underfed animal loses its proportion. The supplement used to increase the protein in the ration is very expensive. This limits the cost of production of milk and likewise its demand.

Cost of Imported Feed compared with Coconut Meal.

Feeds.	Landed Cost.	Duty.	Total Cost.	Cost per lb. Crude Protein.
Cotton Seed Meal	$31.25	$5.21	$37.46 per ton	4.7c
Linseed Meal	43.00	8.00	51.00 per ton	7.2c
Wheat Bran	30.00	5.00	35.00 per ton	10.9c
Oats ..	.60	..	.70 per bus.	19.6c
Coconut Meal	..	..	10.00 per ton	

From this data it will be seen that cotton seed meal is the cheapest of the imported feeds calculated on a basis of its protein. Oats is too high to be fed to the herd, but they are used for mules and horses. Bran is limited by its cost to be fed only to cows nearing time of parturition to avoid trouble with calving. It will be readily seen that the cost of transportation coupled with duty makes it impossible to use low protein feed. The data are representative of the feed imported by the Government of Jamaica and do not include retail prices. Unfortunately the margin between the retail price and actual cost is very high, sometimes as much as 80 to 90%. If the dairymen could develop sufficient confidence in each other and import their foodstuff in large bulks this would do a great deal in reducing the cost.

Coconut meal, which is the only concentrated feed produced, is the by-product of the kernel after the oil has been extracted. One of the great difficulties which was at first experienced was the high fat content.

The meal could not be stored for any length of time without going rancid. Another limitation is that the bulk produced depends on the demand for the oil so that often it is difficult to procure it, in sufficiently large quantities. Cows do not like the taste, and thus it must be mixed with more palatable feeds. About two parts cottonseed meal to one of coconut meal improves its palatability and cows readily accept it. This is the main protein mixture fed to the herd at Hope Farm and has the advantage of being the cheapest. A food like this lacks variety and linseed meal is added where cows are on test. The difficulty with this second mixture is that it is lacking in bulk and is too pasty. To overcome this it is mixed with chaffed canes or ensilage.

The following is an analysis of coconut meal (given by Henry and Morrison) compared with linseed meal.

	Percentage.	
	Coconut Meal. (Old Process)	Linseed Meal. (Old Process) (4)
Moisture	10%	9.1%
Ash	5.6	5.4
Crude Protein	20.7	33.9
Fibre	10.3	8.4
N-free Extract	44.8	35.7
Fat	8.4	7.5

It is two-thirds of the crude protein of linseed meal. It is not as pasty as linseed meal and is fairly bulky; higher in nitrogen free-extract, and about the same in other constitutents. On the other hand it is about one-third the cost of linseed meal per pound crude protein. *Guango* (Pithecolobium saman Benth) is a well-known large spreading tree, which is often six feet in diameter, grown readily in Jamaica, and forms, a good shade for cattle. The pods are eaten by cattle but they are unable to digest the seeds without being crushed. The seeds are hard to crush because of the high glucose content of the pod which clogs the crusher. In Hawaii they have a machine which works fairly satisfactorily. The crushed beans must be used the same day, as the glucose once exposed ferments readily and may cause digestive troubles. This feed is very cheap but care is required in handling it as immature or defective pods may result in poisoning. During the war period of 1914-18 the Government herd was carried over partially on guango. At this time they had been able to secure a mill to crush the pods, as the greatest food value is in the seeds. In 1918 the Hope Farm reported to have stored 192 tons, resulting from the success of 42 tons used in 1917. The report of 1918 had this statement (5): "The guango is a valuable foodstuff and every pound of it should be carefully harvested and stored." In the History of the Hope Farm written in 1932, Mr. Cousins, the former Director of Agriculture, stated that, "On a modern dairy farm in Jamaica, the guango should be scrupulously eliminated as a weed tree and an enemy to efficient dairying." It was also stated that some cows ate it so gredily that they became surfeited and broke out into sores know as "guango farcy." The conclusion drawn from it was that if properly dried and carefully gathered, it made excellent feed. It should be carefully fed, and free access to it is dangerous if in large quantities. This is particularly so when animals are changed into pastures with the large quantities of pods on the ground, where some have been moulded by rain. Should careful attention be paid

to this, guango can be used very profitably. Regarding it in the pasture as a shade tree, one should use his judgment, as a large amount of shade forms a good culture for the growing of 'Guineahen weed' (Petivera alliacea) which taints the milk if the milch cow feeds on it. This with the amount of grass that is covered and the difficulty in cultivation are the main reasons why Mr. Cousins objects to it. He also found that the crushed pods were dangerous to livestock (Mainly due to careless feeding, as Hawaii reported to have used it with success.) Some work should be done on this valuable legume to ascertain its true value in the dairy industry, for dairymen should endeavour to produce milk as cheaply as possible if they are going to compete with imported milk products. It has the added advantage of adaptability to the climate and is a cheap source of protein. The following is the analysis of the seed and of the pod compared to oats:

	Natural (As Fed) (6)		
	Seeds.	Pods.	Oats (5)
Moisture	13.46	20.46	4.2
Fat	5.15	0.56	4.4
Crude Proteins ..	27.34	10.17	12.4
Carbohydrates ..	38.20	55.35	59.6
Fibre	12.10	11.55	10.9
Ash	3.75	1.91	3.5

The pods are high in glucose which accounts for its palatability and high carbohydrates. It is a little higher in fibre and lower in ash than oats. If it is carefully dried on a barbecue where the moisture content is lowered, then the percentage of crude proteins would be about the same level as oats and also is carbohydrates. The seed is very high in crude protein as much as buckwheat middlings and if dried would be as high as dried distillers' grains (from corn). Its digestible crude protein would be about 70% due to the high amount of amides. The high water content requires very careful drying on the barbecue and here it is where the trouble with mouldy feeds lie.

Pastures.

The cheapest feed that one can procure has been the most neglected link in our cattle rearing in Jamaica. We have pastures during the whole year in many parts of the island and yet milk is very expensive to produce. Mr. Cousins (5) said that "90% of the weed trees and scrub growing on the various dairy properties in St. Andrew should be removed and the land ploughed and established in clean Guinea grass." From this statement one can see how much attention is lacking in pastures; for if this is true in the centre of the dairy industry where lands are expensive, then that can be said of other sections of the island as a whole. Yet the Hope Farm stands in close approximity to these farms as a living monument to what may be done by cutting out excess shade and by ploughing. If Jamaica is going to compete with imported dairy products, this side of the business must be given the greatest attention. Pasture grasses are valuable agricultural plants and need cultivation and care to get the best result. In Jamaica there is not enough variety in the pastures. No legumes nor any varied depth at which the plants feed. Yet feeds are the limiting factor in production. The reduction of cost in production depends on the pastures, for here is the only possibility of cutting down the feed bills.

The main pasture grass, guinea grass (Panicum maximum Jacq.) is easily established and maintained. It is a rapid grower and was accidentally introduced into Jamaica as a bird feed in 1740. Since then it has spread over the island. It grows to a height of from 3-6 feet. The finer type is best suited for cattle, but the only difference is due to cultural and climatic conditions. It is a perennial and can be propagated by seeds or by cuttings. Like Kentucky blue it grows readily on good lands and dies down in the drought, but comes up rapidly again as soon as the first showers of rain come.

Following is the analysis of the guinea grass compared with the timothy:

		Guinea Grass (6)	
	Timothy (5)	Just at Flowering.	Late Bloom.
Moisture	12.8	13.87	18.26
Fat	2.6	.26	0.41
Crude Protein	6.3	8.0	2.28
Fibre	29.5	34.11	43.43
Carbohydrates	44.2	34.21	25.03
Ash	4.6	9.55	10.59

This analysis shows that it is about the same as timothy, a little higher in fibre and a little lower in carbohydrates and fat.

Guinea grass should be pastured early, as it deteriorates quickly. From the analysis shown of two samples of grass grown in St. Andrew, it is seen how the feeding value of the late bloom is much lower. Only when one requires to seed the pasture that it should be allowed to go to seed, a quicker method would be to supply the bare space with cuttings, as less time is lost in the establishment of the field. Once established, with careful pasturing at regular intervals and not over cropping, it, with a liberal supply of farmyard manure and an occasional ploughing, this grass will last over ten or fifteen years without replanting. In the rainy seasons there is more grass than can be economically used, while in the drought there is a scarcity and some dairymen have to buy grass from other areas. Could not some of this grass be cut and stored as hay? The writer has seen samples of guinea grass hay which appears to be good feed and was told by the owner that the cows readily eat it. Unfortunately on most farms there is no storage of feed for the drought period, and the cattle have to rustle for themselves.

Para grass (Panicum muticum) was not found suitable for Hope Farm, but has been reported satisfactory for wet, cool sections of the Island. In a mixture with guinea grass, under proper cultivation, it will not survive. It is about the same in feeding value as guinea grass. Sufficient work has not been done with grasses to determine their value in mixtures. The pasture lacks variety and there is no cultivated bottom grass in the guinea grass pastures to avoid undue evaporation from the soil.

A great drawback as previously pointed out, was a lack of protein. With this in mind the writer has searched all materials on legumes for pastures that he could find so as to ascertain whether there is a possibility of growing alfalfa or not. He came across the experiments with alfalfa in Jamaica about 1895 in the Bulletin of the Botanical Department of Jamaica of that year. The result was indefinite. Twenty-five planters co-operated with the Government; thirteen reported that up

to the time it was still alive and some have actually cut it; others reported that the plants have all died after reaching a height of about four inches. Mr. J. Shearer, Duncans, Trelawny, reported as follows (7): "The seeds all grew rather puny at first, but after cutting once or twice the plants are more vigorous each time." In a second report he said,: "My plot of alfalfa is now growing vigorously and I can cut it almost once a month." C.A.T. Fursden reported that after the first cutting: "*it is now growing very thick and vigorously.*" The Experimental Station gave a favourable report on it; but nothing has been said whether the plants developed any nodules or not, to show if the organism (Rhizobium radicicolum) was present, as this eventually will determine whether it will be of value or not. No mention was made of the variety. An important thing was that where favourable reports were received was in the same areas of low rainfall. This summer the writer met an agriculturist who told him that he has alfalfa growing, and it had flowered. He did not notice any nodules. Here it must be mentioned that last year was one of the driest years within the last decade and the plants stood up to it. Hawaii reported that they have been able to cut it nearly every month. In India they have a variety that does exceedingly well under very high temperatures.

The possibility of growing alfalfa in Jamaica seems promising. With a large collection of varieties from different countries, one should be able to select out a variety or to breed them together and then select an ecotype. It will have to be as certain that the necessary organism is present in the soil and determine acidity, because alfalfa will not do well on any other than an alkaline soil. Alfalfa has a great variation of adaptability to different climatic conditions, therefore there is the possibility of selecting one that will suit. It was introduced into Europe from the sub-tropical countries of Asia, and has now reached as far north as Upper Canada.

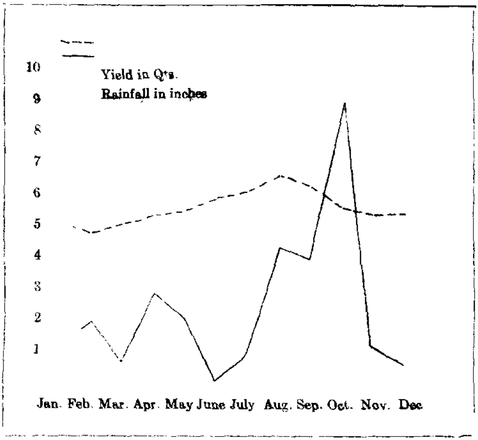
The reasons for the selection of this legume are varied. As a mixture in pastures it would supply all the necessary protein for growing stock, and a large per cent. of that required for production. Swine as a supplement to the dairy industry would be possible. More soil acreage would be brought into cultivation as it feeds at a greater depth than do grasses. The difficulty in finding a drought resistance fodder plant, would be largely solved during the greater part of the dry period. Commonly used protein concentrates are lacking in bulk and it could be made into a meal to replace bran at a lower cost, as now is being done in many large dairy centres. It adds nitrogen to the soil and makes possible for more efficient cultivation of other crops. Should it be found unsuitable for ordinary pastures, it would be grown separately and cut as required rather than for pasturing. The main reason why the writer has chosen alfalfa in preferenene to other legumes is that it is a perennial and will stand up to the drought.

Ensilage.—

Sections around Kingston annually suffer from drought, and the number of cows that can be kept, depends on the amount of feed during this period. A very important thing to remember is that to maintain a market for a product, one must be able to keep the supply fairly constant. *Unfortunately, in Kingston during the dry season* the amount of milk is below the demand and in the wet season there is a large surplus. It is at this time when milk is scarce that one wishes to produce the largest quantity. Two methods of remedying this would be to produce enough hay and silage. At the Hope Farm they

have used silage and canes with the result that they have now been able to reduce the large variation in yield. (See graph)

MONTHLY AVERAGE YIELD PER COW PER DAY COMPARED WITH RAINFALL FOR 1929.



Data taken from the Annual Report of the Department of Agricultural, 1929.

The growing of guinea corn (sorghum vulgare) is a very simple one ad does not entail a large sum. The fields are ploughed just after the rst showers in August and sown. If the grass comes up too rapidly ıd is killing the guinea corn it should be cut; other than this, no ıltivation is necessary. It does not destroy the grass as the next ear's pasture is superior to the one previous, and has the advantage paying for the cost of cultivation. The yield per acre is higher than rn, and it is cheaper to cultivate. The average cost for seven years as three dollars per ton (5). The average farmer may find the over-ad cost too high but he could co-operate with other dairymen in the ıying of a cutter, and a tractor to provide power. This is being done the farms in Ontario, with good result. These men could also unite the time of reaping and so reduce the actual cost of manufacture th less outside labour. The tractor could be used for ploughing the lds. The cost of erection of a silo may be spread over a period of enty to thirty years.

Uba canes have been found to be of great advantage to the Hope rm, but it does not seem practical for the area near Kingston, as

water is the limiting factor. Should a farmer have a spring that he could pipe to his stables, he could use the wash water to great advantage in this way. Yields of over 100 tons per acre have been obtained. Places that do not produce canes may well be advised to use molasses, which can be obtained from the sugar factories.

(To be continued.)

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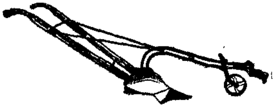


GINGER KNIVES—GRASS, CANE and CORN KNIVES

COCOA PRUNERS—PRUNING SAWS and KNIVES

COFFEE PULPERS—CHAFF CUTTERS

PIMENTO FANNERS

PLOWS -- CULTIVATORS -- HARROWS

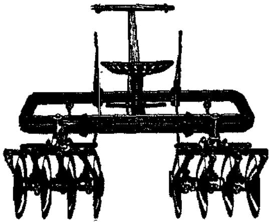
PRODUCE BAGS

COMPRESSED AIR SPRAYERS—ABOL SYRINGES

CITRO-MULSION (for Spraying Citrus Trees)

ARSENATE OF LEAD—SULPHATE OF COPPER

Boilers -- CANE MILLS -- Taches



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AGRICULTURAL RESEARCH.

(*Extract from The Tropical Agriculturist, July,* 1934.)

Success or failure in agriculture, as in every other art or industry, depends on "comparative efficiency." The farmer succeeds or fails in proportion as he produces the better article, and produce it more economically than his competitor producing a similar article. The better quality product, produce in greater quantity to the acre beats the inferior and less "economic" produce off the market. And, as in industrial production, the race is never won. It is continuous and everlasting. Every day the research worker is breeding more efficient plants, is breeding and feeding a more economic domestic animal—success is to those in the vanguard of this perpetual progress: failure to those that lag behind. We cannot afford to resist this law of change or disregard the ever-expanding discoveries of the scientific worker.

Organised agricultural reserarch has usually begun as defence against plant and animal disease. Some pest or fungus attacks a crop and we seek the help of the bug hunters (entomologists) and mould fighters (mycologists) to protect our crops from these attacks, just as we go to a doctor when we are ill. Now, just as "preventive medicine," sanitation, etc., is seen to be more important than the cure of pathological conditions, so, in agricultural research, the best protection of plants and animals against disease is a robust constitution, and disease-resistant factors, which can be bred or maintained by special feeding.

The bulk of the higher modern agricultural research work in the world has developed into three main types of scientific effort—the work of the geneticist or breeder, the work of the physiologist, and the work of the nutritionist or feeder. Perhaps I ought to add the "ecologist," the man who studies the environment of a plant or animal and seeks to establish what are its optimum conditions of climate, soil (in the widest sense), light supply, etc. Of course, the process of "seed selection," cross-breeding of animals, manuring of plants and special feeding of domestic stock, have always gone on in agriculture. But, nowadays, these often chancy or empirical advances of the past have been superseded by the more scientific, fundamental and long-range research of the geneticist and the nutritionist.

The agricultural research stations which seem to be making the most remarkable advances in new discovery to be leading in the race for agricultural efficiency are these "one crop" stations, where a team of specialist workers concentrate on the improvement of the economic efficiency of one crop. In them with the geneticist leading the plant physiologist, the biochemist, the ecologist, the entomologist, the mycologist, set out to solve the problem after problem with a view to producing new types and new varieties of greater economic efficiency than the existing ones, and of controlling or supplying the (often obscure) environmental conditions under which that efficiency can best be realised.

The scale and range of some of these stations is enormous, including as they do, not merely the creation of new varieties, but all the problems of manuring, irrigation, and improved technical handling of the crop. Probably the largest and in many ways, the most remarkable, are the new sugar beet and potato research stations in Soviet Russia. In the tropics, the research station in Java, and especially the great sugarcane research station at Passaruan, are the most up to date, and successful.

What both Governments and farmers frequently fail to realise is that we have now reached a stage of knowledge and experience in these matters where the making of further advances, as regards many of the world's staple crops, involves the organized team work of many specialists over a series of years. The demand of the laymen is for quick results for expenditure in research. This demand is often quite impracticable, and its mere existence has often diverted the team of workers from what they know to be the better, and ultimately more useful, but longer, piece of work, in favour of something shorter in time, but less important in result. For there must be no misunderstanding that the most important advances are nearly all the result of uninterrupted work on a problem, for anything from five to ten years.

Research is necessarily expensive. Not only is the whole apparatus of the agricultural research worker a fairly expensive business, but the worker himself has nowadays to go through a long period of university and post-graduate training, and, in order to keep up to date, has to be fed with literature and translations from contributions by other workers in the field in many different languages. And, above all, the supply of the really qualified men is pretty limited. There is somewhat of a vicious circle at present in this last matter. There are few men because there are few jobs offering. On account of the world-wide commodity slump, at this moment there are more men capable of good research work than there are jobs, at any rate in the British Empire overseas, a strange contrast to conditions obtaining a few years ago.

It is not easy to bring home to the average citizen of the British Empire, with his general and most universal tradition of literary and classical education, the significance of modern science. Even where he has included in his education some smatterings of modern science, his knowledge in the main is linked to physics and chemistry. For most British people biology is either a closed book or limited to a little botany or zoology. Some decimal of one per cent, may have heard of Pasteur, a smaller decimal of the Abbe Mendel. Genetics—even plant genetics—is still something under taboo as a school subject. Consequently the politician and the administrator, the treasury controller and the general public don't begin to know what the agricultural research worker thinks about. They don't begin to comprehend his language, still less to understand the character of his work. This ignorance is a serious danger to the whole economic future of those parts of the Empire that are dependent on agriculture, and particularly on the export of agricultural products in competition with world markets. We are skilled in handling legal, transport and industrial problems, but tyros at modern biology. Our research institutions in the Colonial Empire are few, small and short of money and personnel. The few we have are good, especially the College and the Cotton Research Station in Trinidad. Trinidad in a few short years has already made a real difference: but we are behind the vanguard in the race and we cannot henceforth afford to leave it to the Dutch, the Russians and the Americans to lead us. We are already suffering in competition from a want of knowledge and a want of intelligent imagination in this whole subject. Our whole educational curricula have been based on an old stable civilization and on conditions that are fast changing. The most serious gulf to be bridged is the intellectual gulf between the actual research worker and the people with power who alone can provide him with the support and opportunities, without which the research worker cannot help them.

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THE PINE APPLE INDUSTRY.

Much has been said at various times regarding our possibilities for a pineapple canning industry. The purpose of this short note is not to express an opinion of its prospects, as we have not been afforded any good opportunities for a careful study of the subject and so do not feel competent to advise,—rather we would emphasize the high state of organization and efficiency that is existent in Malaya, one of the largest producing centres availing themselves of the British market for the disposal of pineapple products. To this end we reproduce below an article from "Canned and Dried Fruit Notes" for October, 1934, published by the Imperial Economic Committee, and as will be seen by its perusal, not only is the processing side of the industry very highly organised but the cultural and marketing branches of the industry are equally so. Government control also enforces measures calculated to produce efficiency and quality. The last paragraph deals with research which covers improvement of cultural methods and strains of plants. Plant breeding with a view of producing improved varieties and fertiliser trials to improve production are among the progressive methods adopted for the improved efficiency of the industry.

All this spells lowered cost of production and a higher competitive ability. There is an important lesson to be learnt from all this and that is, to establish new industries in this country we must be prepared to do so with a very high standard of efficiency, which is the only way by which we can hope to compete in the markets of the world with our highly efficient and organised competitors.

[Editor.

PINEAPPLE CANNING IN MALAYA.

There are no regular official statistics of production of canned pineapple in Malaya, but as the bulk of the pack is exported, the export figures furnish a fairly accurate indication of the trend of the output. These figures and other information available show that for many years prior to 1933 the prevailing tendency was one of expansion, but that a fairly sharp contraction of output took place last year. The principal factor was no doubt the fall in prices which has persisted for some time, but a secondary cause of considerable importance, not entirely connected with declining values, was the re-organisation which is taking place in the industry itself, mainly as the result of action initiated under Government auspices.

Early in 1933 the packers formed a Packers' Association which provided funds for a pool with the object of preventing violent fluctuations in the price of the fresh fruit and to control supplies, economise in overhead charges by closing certain factories and paying compensation to the owners. The money required to carry out this scheme was obtained by a cess of 25 cents per case of canned pineapple exported. As a result of the operation of the new plan one factory in Singapore and three in Johore ceased operations, according to an official report on the industry. Packers attempted to cover the cess by reducing the price of fresh fruit, and this action led to retaliation by the growers who reduced production by destroying the young fruit in alternate rows. It is estimated that 35 per cent. of the crop was destroyed in this way, leading to an increase in the price of the fresh fruit, which in May to July, the main canning season, was between 2-3.50 Straits dollars per 100 fruits.

This reduction in potential supplies was probably not as serious as at first appears owing to the substantial increase in acreage which took place between 1932 and 1933. In considering acreage figures, moreover, it is important to remember that while the bulk of the Malayan pineapple crop is still grown as a catch crop on rubber plantations, the movement towards the cultivation of pineapples as a sole crop has extended rapidly in recent years. It therefore seems probable that a large proportion of the increase in 1933 consisted of new areas devoted to pineapple alone, where the yield per acre is, of course, much higher. The importance of this change in the method of cultivation can be realised from the fact that in 1929, when the total area in Malaya on which pineapples were grown exceeded 50,000 acres, only 3,000 acres in Singapore were used solely for pineapples, whereas in 1933 nearly one-third of the total acreage was given over entirely to pineapples. The greatest advance has been made in Singapore, where over 60 per cent. of the area is cultivated as a sole crop, but the proportion is also high in Selangor. In Johore, however, the most important producing area, less progress has been made in this direction.

In the following table acreage figures are given for the past three years, with details of the area cultivated as a sole crop in 1933.

Area under Pineapple Cultivation in Malaya.

State.	1933.		1932.	1931.
	Total area.	Cultivated as a sole crop		
	acres.	acres.	acres.	acres.
Singapore	9,500	5,800	10,000	8,000
Johore	42,644	9,849	39,300	35,000
Selangor	7,618	4,090	6,939	5,207
Other States and Settlements	4,815	1,164	4,520	3,050
Total	64,577	20,903	60,759	51,257

Towards the end of the year two new factories were established in Singapore, and one was demolished leaving a total of five, while there were twelve factories in Johore of which four had not operated during the year. Two factories were operating in Selangor during 1933, but one was closed at the end of the year. It will be recalled that in 1930 the High Commissioner appointed a Pineapple Conference to investigate and report on conditions in the industry. The recommendations of this Conference have since been exhaustively discussed with the representatives of the industry and a Bill embodying the results of the discussions was introduced in the Legislative Council of the Straits Settlements in the latter part of 1933, while similar legislation was later prepared for Johore and Selangor. These measures have now come into operation with effect from 1st October.

The new ordinances which, in all essential points, are the same for the Straits Settlements, Johore and Selangor, will establish a closer control over production with special reference to the improvement of the product for export. Among the more general requirements, it is provided that every pineapple factory shall now be registered, and the Registrar may refuse registration to any factory not approved by the

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local health authority. All factory owners are also required to register a mark which must be indelibly stamped on all cans and containers. This requirement is particularly important since unmarked produce may not be exported. Provision is also made for the appointment of an inspectorate, and the levy of a cess to cover expenses. Compulsory grading will not be enforced for the time being, but wide powers are conferred on the authorities, who may make regulations in relation to any matters deemed expedient for carrying into effect the objects of the ordinances. Among the points specially mentioned are the packing and preparation of preserved pineapples and pineapple products; the establishment of standard grades; grading, certification and marking; the establishment of trade descriptions; the registration of brands; and the use of labels. On the important question of grading it may be mentioned that tenative standards have already been worked out, and a series of experimental shipments to test the new grades has been sent to this country. Reports published in the Malayan Journal of Agriculture suggest that the tests were satisfactory.

The introduction of legislative regulation is an event of outstanding importance in the history of the Malayan pineapple industry, since it gives definite form to the prevailing tendenceics of recent years, The new regulations are concerned mainly with the factory, but for a long time work has been proceeding at institutions, such as the Pineapple Experiment Station in Singapore, on lines designed to improve cultivation and pineapple strains. Work has been commenced, for example, on selection and breeding trials, having as their object the evolution of a type of pine possessing the desirable characteristics of the local canning variety and eliminating its disadvantages. The introduction of more modern methods of manuring is also receiving attention, especially on lands where sole crop cultivation has superseded the catch-crop basis. There can be little doubt that these efforts added to the improvements which are taking place in factory methods, will result in a greatly improved product.

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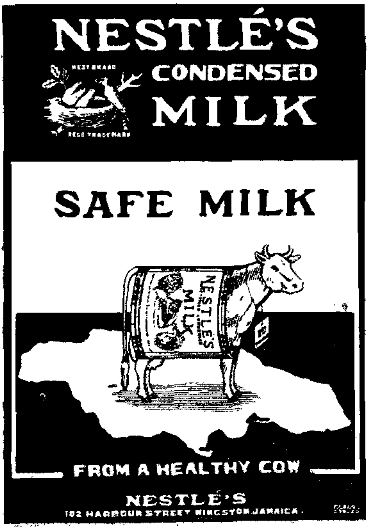

FRESH BUTTER??

(Extract from Tropical Life, October, 1934.)

Extracting a four-line paragraph from one of our exchanges, we read without much interest a statement that some butter had been found buried in peat, in which it had probably lain for a thousand years. Thinking it was a misprint, and wondering vaguely how many years should have been stated, we sent it on to Mr. Richards Bolton, author of "Oils, Fats and Fatty Foods" and Managing Director of Technical Research Works, Ltd., in Milner Street, S.W.3, which we recently visited and found well in advance, as to equipment, of any similar establishment that we have knowledge of. We sent the paragraph to Mr. Bolton as a joke, but were surprised to receive the following acknowledgment from him: "Many thanks for the interesting cutting with regard to the thousand year old butter. This is the old story and it is evidently akin to Irish bog butter which is dug up from time to time. It seems that the butter first of all develops a certain amount of rancidity and then, after many years, the actual taste and smell of rancidity disppears and the butter is alleged to be fresh. I think you will find such butter has developed a considerable amount of free fatty acid. It has been proved over and over again that fats, or rather fatty acids, are among the most stable of organic substances.

How about margarine? As it has only been known for thirty years and is nowadays made from so many different fats, which could alter materially even if buried for only a hundred years, one fears that we shall never be able to compare its fate with butter since those who walk on the earth to-day will be unable to experiment with margarine on equal terms with butter in A.D. 2934.

A thousand years ago, of course, would take us to the year 934, or 132 years before William of Normandy conquered England, and when Athelstan was King and by some styled the first King of Britain (in 924) It was Athelstan's sister who married, as his first wife, Otho, the Great Emperor of the German Empire. All this is a good long time ago; meanwhile, one can imagine the butter being buried in such an atmosphere and think of its undergoing its various changes underground whilst so much was happening on the surface of the earth until one fine day the butter is found and pronounced to be......fresh. Fresh from the peat, perhaps.

Discussing the matter with an ex-Brittany butter exporter, he mentioned the fact that in Stockholm recently a number of scientific men at a banquet partook of a dish of roast mammoth, possibly some 10,000 years old. Bog butter, therefore, would be a baby to it, but why not serve 10,000-year-old mammoth flesh stewed in thousand-year-old butter, served on toast made from mummy wheat of an age that heaven alone knows? What it is to have an imagination.

All this makes one wonder when butter first came into use, probably in a liquid state like *ghi* or ghee, but, alas! where to look for such information? One seems to remember, however, that the Phrygians, noted as graziers, whose kingdom was merged into Lydia in 560 B.C. and must have existed long before that, knew butter probably as an oil, for in those days, and for long after, no one seemed aware that it could be made solid. The Thracians, also noted for stock-farming, including the famous Thracian horses, also probably knew butter, but whether their knowledge ante-dated that of the Scythians we cannot say, and in any case we do not want to think of a preparation, 2,500 years old, being classified as "fresh butter." A thousand years is surely long enough to breach over for butter to remain fresh.

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THE JIPPI JAPPA HAT INDUSTRY.

The Jippi Jappa Hat Industry some years ago, was quite a valuable minor cottage industry, especially so, to the Above Rocks and Glengoffe Districts of the parish of St. Catherine. Now-a-days it has fallen on evil days, due to the fact of generally lowered commodity prices and possibly more directly, to severe competition from sources, such as Guyaquil.

The Glengoffe Branch of this Society, appealed to the Parent Body to enquire into the industry with a view to seeing what could be done to resuscitate it. A meeting of this Branch was held on the 6th November last, to which was invited Mr. Leslie Mordecai, Managing Director of Messrs. C. S. Chamberlain, Ltd., of this city, this firm being the largest handlers of the Jippi Jappa hat both in the local and export trade.

Mr. Mordecai was accompanied by two members of his staff and several prominent gentlemen attended, among whom were Messrs. A. S. Lecesne, E. J. Gordon and A. O. Soutar who are well acquainted with the districts and the industry. A visitor to the meeting was Monsieur Dujoie, a Haytian visitor to the country, and who happens to be in charge of the Agricultural Educational and Extension Services of the Republic of Haiti. The Secretary of the Parent Body was also present.

We regret to say that the meeting could find no avenues which would make the industry profitable. The addresses and discussions, however, proved very useful and we are very much indebted to Mr. Mordecai for a really very clear explanation of the position as it stands at the the moment. Guyaquil hats of the cheaper grades are wholesaled in London at 1/3d. each, which would hardly mean more than 5d. each

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to the cottage manufacturer. As such a hat would take at least half a day to make, it will be seen that this grade of hat would afford very poor wages indeed.

The only immediate hope of the industry would seem to lie in the popularising of a better type hat which would sell for more money and afford a higher rate of wage to the maker. Ways and means were considered at the meeting as to how this could be done, among which was the suggestion that a wedding present be sent to H.R.H. The Duke of Kent of one of our best type hats with a hope that his wearing it would help to popularise Jippi Jappa Hats as summer wear among the wealthier classes in England. Something on the same lines could be done out here and probably any of our visiting Princes or notabilities could also be presented with a Jippi Jappa Hat, with the same end in view.

We fear that we are not sufficiently optimistic to see any immediate future for this industry whilst present conditions last and so we strongly advise the people of Glengoffe to fall back on the other numerous avenues of agricultural activities offering, as being likely to afford them a safer and better livelihood.

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Extract from Weekly Fruit Intelligence Notes 24/10/34.

PORTO RICO.

The 1934-35 grapefruit crop in Porto Rico is expected, according to a report issued by the United States Department of Agriculture, to amount to 1,085,000 boxes, of which about 260,000 boxes should mature before the end of December.

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I enclose a cutting from an American paper which might be of interest to your Society as Jamaican waters produce numberless conchs—and our industries are few in number—do you think it might possibly interest Mr. Winand of the lobster cannery?

Yours, etc.,

(MRS.) ETHEL VINCENT-TOWNEND,

Cedar Valley, 2.11.34.

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SOME BEE DISEASES.

By H. H. Coote, Bee Instructor, Jamaica Agricultural Society.

There is a tendency on the part of many bee-keepers to believe that we can only get serious diseases among our bees, such as European Foul-brood, American Foul-brood, or Isle of White diseases introduced into this Island from foreign sources. This idea should be eradicated and the true position told, so that the bee-keepers who have not had the opportunity of experience or reading books written by noted authorities on the subject, be made conversant with it.

We have many mild diseases among us, and although not generally considered contagious, there is one of these, Pickled or Sacbrood, that should be carefully watched as it has been known abroad to develop into European foul brood through neglect. What has happened in one country may possibly happen in another, despite the difference in the climatic conditions, and so it behoves us to be always watchful.

Pickled or Sacbrood, Dysentery, Paralysis or Chilled brood have been always with us, but apart from the first named there is nothing serious in the rest. The intention of this article is to draw attention to the fact that during the past month in the course of my work I discovered that quite a number of apiaries had Pickled-brood in different stages, and to advise all bee-keepers to keep a watchful eye on this troublesome malady for fear of further developments. A colony in this state is sometimes mistaken by the bee-keeper for some other trouble and he sometimes accepts its condition for what is locally termed Dwindling.

Pickled-brood affects the larvae, i.e., they generally die before they are sealed. The colour of the dead larvae is either light yellow or brown and the decomposed body a kind of watery substance. This disease does not attack the sealed brood although they are attacked almost to this point.

The only method of overcoming this trouble is to keep your colonies strong, even if you have to unite to make this possible. One would readily see that with the larvae at this stage of dying, even although you may have a prolific queen, the colony will make no headway as the death rate would be more than the birth rate.

The number of worker bees that existed in the colony before, and which will be dying out gradually, would not be able to cope with the death rate and it is obvious that it would be possible that the amount of decomposed bodies in the hive may develop into a more serious disease, namely, European Foul-brood.

We apiarists must appreciate the fact that a neglected disease will multiply germs and lead to other sources of trouble, other than that it originated with.

With regard to European Foul-brood that could be developed from Pickled.brood; in most instances it is caused through neglect on the part of the apiarist. This trouble develops after a spell of dry weather succeeded by excessive rains.

A sudden cold spell of weather may have the same effect. To discern European foul-brood the bee-keeper should watch the larvae at an early stage while it is still curled up at the base of the cell. This is the beginning of the ravages of this malady as later on we discover it attacks the capped broods which like the American Foul-brood is sunken and unlike the usual capped brood. If a match stick be inserted in the decaying mass and withdrawn a slight ropiness will be observed but

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the elasticity of same would not be equal to that of American Foul-brood. It is not difficult to diagnose whether such trouble is European or American Foul-brood. The odour of the European Foul-brood is very mild while that of the American Foul-brood is distinctly foul.

Treatment of Pickled-brood.

No loose comb with brood or eggs should be left uncovered, by the bees in a colony. It is better to remove them for making wax, or destroy the frames, as there is nothing to be gained in keeping the combs during the fall season as it is hopeless to expect the bees to increase during that period (August to November).

If the condition of your apiary gets beyond Pickled-brood and you are in doubt, communicate with the Secretary of the Jamaica Agricultural Society who will arrange for inspection.

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CLARENDON ALL-ISLAND SHOW.

The Clarendon All-Island Show at May Pen will be held on Easter Monday, 1935. This show is expected to prove a very successful event. On account of the various disasters we have had in the past few years, no shows of major importance were possible. This big effort on the part of the Clarendon Show Committee should therefore meet with a lot of support and be welcomed by the many patrons of our Agricultural Shows. Among the instructive features that are expected to be on exhibition, will be an exhibit by the Department of Science and Agriculture, which will include some good types of stud animals, and possibly poultry. It is planned that two-minute talks will be given on the various features connected with this exhibit.

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Desserts.

Raw Fruit—Sliced bananas with sugar and cream, sliced pineapples, grapefruit, naseberries. watermelon. bilberries or blackberries with sugar and cream, star apple, sweet sop, custard apple, Bombay mangoes.

Stewed Fruit—Stewed guavas, mangoes, apples, pineapple, alloes.

Pies and Tarts—Crust—2 cups flour. ⅔ cup Crisco, ¾ teaspoon salt, cold water. Mix and sift flour and salt. Rub in Crisco. Add as little water as possible. Roll out.

Fillings—*Custard pies* need only a bottom crust made with 1 cup flour, a two-egg custard is made with the addition of 1½ tablespoons flour. These may be varied by the addition of grated coconut or chocolate.

Stewed Apples make a good filling, so does pineapple. For *bilberry* pie wash and pick 2½ cups berries, add 1 cup sugar, 2 tablespoons flour, 1 teaspoon lemon juice and bake between crust. *Tarts* are made in muffin tins, filling and added after they are baked or the raw filling is placed on a circular crust and folded over.

Custard—2 eggs, 2 cups scalded milk, ½ teaspoons vanilla, 2 tablespoons sugar, few grains salt, few grains nutmeg. Beat eggs. Add sugar and salt. Scald milk, add to mixture, add vanilla and nutmeg. Pour in one large or six small custard dishes, set in a pan of hot water and bake until firm. A cup of cooked rice or two slices of bread cut in dice, may be baked in a custard. Sliced oranges added make a pleasant variation.

Ice Creams—Make a custard of 4 cups rich milk, 3 eggs, 1 cup sugar, 1½ tablespoons flour, few grains salt. To this may be added vanilla, rum, mapeleise, strawberry or pineapple flavouring. Freeze in 1 part rock salt to 8 parts finely chopped ice. Chocolate, pineapple, strawberry or any desired sauce may be added.

Ices—Boil together 4 cups water, 2 cups sugar. Add 1 teaspoon gelatine soaked in 1 table spoon cold water. Add juice of oranges, grenadilla, cocoanut or other fruit to equal three half pints. Add juice of a lemon and freeze.

Sweet Potato Pudding—2 medium sized potatoes, 1 pint cold water, ½ cup sugar, 3 tablespoons butter or ½ a grated coconut, ½ tablespoon ginger, ¼ tablespoon salt dash of rum. Peel and grate potatoes. Add other ingredients and mix thoroughly. Turn into baking dish and bake slowly for three hours.

Cottage Pudding—¼ cup Crisco, 3 teaspoons R. B. Powder, ¾ cups sugar, 2 eggs, 2¼ cups flour, ½ tablespoon salt, ¾ cup milk, 1 tablespoon vanilla. Cream Crisco, sugar and eggs. Mix and sift flour, baking powder and salt and add alternately with milk to first mixture. Add vanilla and bake in hot oven. Serve with custard, chocolate or lemon sauce.

Steamed Chocolate Pudding—1 tablespoon Crisco, 1½ teaspoons R.B. Powder, ¾ cups sugar, ½ teaspoon salt, 1½ cups flour, ½ cup milk, 1 egg, 2 oz. chocolate. Cream Crisco, eggs and sugar. Mix and sift flour, baking powder, and salt and add alternately to first mixture.

Beat thoroughly and add melted chocolate. Mix well. Put in greased mold and boil 1 hour. Serve with marshmallow sauce.

Pound Cake—1 cup butter less 1 tablespoon, 1½ cups flour, 5 eggs, 1½ cups powdered sugar, 1 teaspoon R.B. Powder. Rum or Sherry flavouring. Cream butter. Add flour, beat egg yolks, add sugar, combine mixture, add stiffly beaten whites then baking powder and flavouring. Beat thoroughly. Bake 1¼ hours in slow oven.

DINNER RECIPES.

Soups.

Beef and Vegetable Soup—1 lb. soup meat and bones, seasoning, 1 large bundle soup greens. Put meat in 2 quarts water in soupp ot. As scon as it comes to a boil, skim and let simmer for a hour. Add vegetables chopped fine and seasoning. Continue slow cooking for a couple hours. Serve as it is or strain and add a teaspoon of chopped pars'ey.

Fish Broth—Put 1 lb. King fish or mullet in 1 quart water, add 1 chopped onion, 1 sprig parsley, 1 sprig thyme, 1 teaspoon salt, 1 slice pepper. Cook slowly for about one hour. Strain and serve with wafers or melba toast.

Bean Soups—Red peas, congo peas, black eye or split peas. Soak peas overnight. For one pint peas use 2 quarts water. Cook slowly for one hour then add ½ lb. smoked pork, ½ lb. salt beef, half a pepper, one on'on, a sprig thyme and ½ dozen pimento seeds. When grains are tender, rub through a collander, return to stove and add a breadfruit, a piece of yam and half a dozen cocoas. The puree may be served without the addition of vegetables. Hot milk may also be added.

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Meats.

Roast Beef—Select a good cut, the first three ribs preferably. Mix together 2 teaspoons salt, ½ teaspoon black pepper, ½ teaspoon mustard, ½ teaspoon onion, garlic and pepper juice, and one tablespoon flour. Rub meat well and put in hot oven. If open roaster is used, baste often. For rare meat allow 15 minutes to the pound. Well done roast will take longer.

Roast pork may be seasoned in the same way but requires long cooking.

Roast lamb does not require as much seasoning. Add a couple slices of lime.

Gravy—Take four tablespoons of fat from roaster, blend with four tablespoons of flour. Add juice from roaster. If too thick, add boiling water, strain.

Roast Chicken—Clean thoroughly, wash and dry chicken inside and out. Mix together 2 cups fine bread crumbs, 2 tablespoons onion juice, 1 teaspoon black pepper, ½ teaspoon mustard, 1 teaspoon salt, 1 teaspoon chopped parsley. Add 6 tablespoons melted butter. Fill chicken and sew. Rub outside with 1 teaspoon paprika, 1 tablespoon flour, 1 teaspoon pepper, juice of half a pepper. Roast in hot oven.

Fried Chicken—Joint a tender chicken, wash and dry, mix 1½ teaspoon salt, ½ teaspoon black pepper, 1 teaspoon onion juice, two tablespoons flour. Rub chicken well and fry in deep fat. Drain on brown paper.

Beef or Lamb Stew—Cut meat in medium sized pieces, fry in its own fat. Cook slowly until almost tender. Cut 2 carrots, 2 turnips, 2 parsnips, 2 potatoes in fancy shapes. Add a dozen string beans cut in dice, 2 tablespoons limes, ½ dozen small white onions, a tablespoon chopped parsley and scallion. Cook half an hour. Add dumplings and cook 20 minutes more. Thicken gravy. This may be baked in pie crust.

Fish Baked—Any large fish like King Fish should be washed, rubbed with lime juice, seasoned well with salt, pepper and onion and baked with butter.

Fried Fish or Oysters—Clean, wash and dry medium fish. Mix ½ cup flour, 2 teaspoons salt, 1 teaspoon black pepper, 1 teaspoon scallion, chopped fine. Rub fish well and fry in deep fat.

Starchy Vegetables—*Yams, potatoes, yampees* and *cocoes* are delicious, scrubbed, dried and baked in the oven. Split *breadfruit* in halves, remove pith, wash, dry, butter and bake. Remove pith from medium sized *pumpkin*, split in halves, scrub well, dry, fill inside with milk, sprinkle with salt, pepper and add a lump of butter. These vegetables are all very good boiled in salted water. Peel and boil *bananas* in salted water. *Plantains* are good, baked or boiled.

Rice and Peas—1 cup peas, 3 cups red rice, 1 coconut, 1 onion, 1 clove garlic, ½ country pepper, 1 teaspoon salt. Soak peas over-night. Cook in 2 cups water until grains are tender. Add onion, garlic if desired, salt, pepper and milk from one coconut. Add rice and stir well. Let cook slowly without stirring until rice grains are tender.

Green Vegetables—*Carrots, turnips, cho-chos, squash, egg-plant,* are peeled, cut in dice and cooked in salted boiling water for 20 minutes. The "liquor" may be saved for beef soup. *String beans* are cut lengthwise after being "stringed," then tied in little bundles and boiled 20 minutes in salted water. *Spinach* needs carefully picking over and washing. Cook 20 minutes in its own juice. Add salt, pepper and butter. *Cabbage* is shredded and cooked in boiling water 20 minutes.

Salads—The fruit, vegetables and leaves that are used in salads are many. Some of these are alligator pears, bananas, naseberries, tomatoes,

cucumbers, carrots, lettuce, water-cress, cabbage and mustard leaves. They may be combined in dozens of ways. Mayonnaise, boiled or French dressing is served with a salad. Grated cheese, chopped nuts, hard boiled eggs or cold meat make a welcome addition if the salad is the main dish for lunch or supper. At least one salad a day should be served.

Cole Slaw—1 cup shredded cabbage, 2 chopped carrots, 1 tablespoon chopped parsley, 2 chopped pickles. Mix and chill and mix in ½ cup French dressing. *Tomatoes, cucumbers, alligator pears* are sliced and placed on lettuce leaves. The insides may be scooped out and filled with cooked vegetables mixed with mayonaise. *Cucumbers* and *water cress* with French dressing are delicious. The outside leaves of ***lettuce shredded*** fine and mixed with mayonaise and tomato ketchings are a good dinner salad.

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Portland	7
St. Mary	11
Trelawny	1
St. James	9
Hanover	3
Westmoreland	3
St. Elizabeth	6
Manchester	4
Clarendon	32
St. Catherine	15

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BRANCH NOTES.

ST. CATHERINE: Troja.—Meeting 9th October. Present: Mr. J. C. Henry, Vice-President in the chair, 11 other members and some visitors. Arising from the minutes, the proposed excursion for members of the Branch was discussed, and it was finally decided to pay a visit to Hope Gardens in February next. The matter of examination of vendors of food came in for much unfavourable comment. It was the opinion of the members that a more thorough examination was necessary. Discussion on the advisability of licensing butchers was deferred until the next meeting. The Secretary was instructed to inform the Authorized Persons that unless they attend the meetings regularly, the Branch would recommend that their names be taken off the Roll. The Secretary was also instructed to ask Mr. R. C. Somerville, Produce Inspector, to give an address at the next meeting. The singing of the National Anthem brought the meeting to a close.

Troja P.O. A. E. CHRISTIE,
Secretary.

Omeally.—Meeting October 25th. Present: Mr. J. Dillon, President; ten other members also a few visitors. Correspondence from the Parent Society re Branch of Government Savings Bank, and from the St. Catherine Associated Branches was read and discussed. Four delegates to represent the Branch at the meeting of the St. Catherine Branches Associated were elected. The Secretary was directed to forward two resolutions to the St. Catherine Associated Branches. One Authorised Person reported on his work. Discussion on the proposed "nursery" was entertained and the President gave "spot" for same. The President and Secretary informed the House of a discussion they had with the Clerk of the Parochial Board, re the protection of a spring which is being used as the chief water supply for the districts. It was agreed that invitations be issued to Mr. E. A. McNeil, J.P. Chairman of the St. Catherine Parochial Board, and the Officer in charge of the Riversdale Police Station, to attend the next meeting. Minor matters were dealt with and the meeting was brought to a close with the singing of the National Anthem.

Harker's Hall P.O.

AMOS A. HENRY,
Secretary.

Phillipsburgh.—Meeting 8.10.34. Present: Mr. A. A. Hudson, President; fourteen other members and two visitors. Arising out of the minutes matters relative to the improvement of District Water Supply were dealt with. The Secretary said that the owner of lands adjoining the spring had signed an agreement by virtue of which the Parochial Board could safely carry out the necessary improvement. It was agreed that a secular concert should be held at an early date, and that non members should be asked to help. The members felt that the Branch should be affiliated with the St. Catherine Branches Associated. A part of the affiliation fee was collected and members who did not subscribe were asked to do so at the next meeting. The Authorised Persons present reported. The National Anthem was sung and the meeting adjourned.

Redwood P.O. C. A. LESLIE,
Secretary.

Sligoville.—Meeting October 3rd. Present: the President, A. A. Watkis and a few members. As arising from the minutes it was suggested that the Watkis' Presentation Fund be deferred till next meeting. It was agreed that the non-attendance of Authorised Persons at meetings be looked after. Messrs. Z. Keith and J. Gayle were nominated Authorised Persons. It was noted that a Juvenile Branch had been organised. Roll was called. Meeting terminated by singing of the National Anthem.

Sligoville P.O. E. B. REID,
Reporting Secretary.

Victoria Branch.—Meeting 18th October. Mr. N. A. Henry, 2nd Vice-President, presided. Instructors Martin and Byles, thirty-one members, and some visitors attended. As arising from the minutes, a Managing Committee was appointed. Mr. A. Angus was nominated to be an Authorized Person. The school children sang, after which Mr. C. A. Isaac-Henry gave an inspiring address. He congratulated the members on their forming a Branch Society here, and encouraged them to keep up the Society by keeping together, as that will make them stronger in their efforts. Master S. Martin recited "The Land of My Birth." Instructor Martin addressed the meeting. He showed the great use of the Agricultural Society and made mention of the Juvenile Branch and the Women's Auxiliary. Mr. E. Thompson gave a banjo selection, after which Instructor Byles gave a lengthy and interesting address on citrus. Mr. S. Thompson made mention of implements necessary for the caring of citrus. It was decided to deal with this matter at the next meeting. Affiliation

with the Associated Branches of St. Catherine was considered. The Secretary was advised to make application, and five delegates were appointed to attend the next meeting.

After another banjo selection was given minor matters were dealt with, and the meeting closed with the singing of the National Anthem.

Linstead P.O. (Miss) M. L. BURRELL,
Secretary.

ST. THOMAS: Cedar Valley.—Special meeting, 17.10.34. Present: Rev. S. S. James, 1st Vice-President, presiding; Hon. R. Ehrenstein, M.L.C., 23 other members and a large number of visitors. The Chairman welcomed the Hon. Member and then called upon Miss M. I. Walter to read an address, in which certain pressing needs of the district and its surroundings were mentioned. The M.L.C. replied to each need exhaustively. (1) Re Arntully Gap-Mahogany Vale Road, he said it would be the first on the next Road Scheme. (2) He would do his best re Telephone at Hagley Gap, and if enough business was being transacted, he felt sure it will be given. (3) He was sorry more people did not buy the Monklands' Lands, as he was responsible for getting the Government to buy the lands. (4) He said he had been advocating for a Dispensary at Cedar Valley for years, but he would not cease. (5) Re yaws, he had got the Commission to start in the parish some years ago. It was up to the parents to help the doctors. Re V.D. the Government was working out a scheme for that. The Government had a grant of £3,000 for T. B. They had started a private T. B. League at Morant Bay. Patients should not hide the disease but go to the Dr. early and follow his advice. Mr. Ehrenstein expressed the pleasure it gave him to be present, and impressed upon the people the necessity of attending the meetings and reading the Journals. A vote of thanks was conveyed to the M.L.C. The meeting then rose with the King.

Hagley Gap P.O. H. H. WATSON,
Asst. Secretary.

Middleton.—Meeting 24th October, 1934. Present: Mr. E. B. Johnson, presiding, and six others. Correspondence was read and dealt with. Authorised Persons reported "all correct." A new member was enrolled. Delegates to the Half-Yearly Meeting of the St. Thomas Branches Associated were appointed. Other matters were dealt with and the meeting adjourned.

Seaforth P.O. E. S. BLAKE,
Acting Secretary.

Wilmington.—Meeting 24.10.34. Present: Mr. C. M. Hart, President, and 15 other members. Arising out of the minutes, the members agreed to go in for coffee planting so as not to be dependent on bananas only. The President advocated the planting of Soya Beans, but this was deferred for a future meeting. Five members were appointed delegates for the Half-Yearly Meeting of the Associated Branches. Three members were nominated as Authorized Persons, and resolutions for the Half-Yearly Meeting were drawn up. The members decided to invite the Hon. R. Ehrenstein, M.L.C., to a future meeting. The singing of the National Anthem brought the meeting to a close.

Morant Bay P.O. W. AUG THOMPSON,
Secretary.

TRELAWNY: Waldensia.—Meeting 1st October. Present were: J. A. Hines, Esqr., President; Rev. E. A. Jessop, M.A., J.P., Treasurer; Instructor Robotham, 15 other members and four visitors. Mr. C. C. Lee was unanimously elected Secretary in the place of Mr. Carey, the late Secretary. A letter from the Parochial Board in reply to a communication from the Branch was read relative to the bad condition of the roads. The Secretary was instructed to send a letter of sympathy to Mr. V. Gentles, J.P., re his illness. Letter from the Bank regarding funds lodged on account of the Branch was dealt with. Instructor Robotham gave a very full and educative address on the picking and curing of coffee. The Instructor said that he was willing to carry out a pulping demonstration if the members make the necessary preparations. The members thanked the Instructor for his address. Arrangements were made for the purchasing of one cwt. of Irish potatoes from the Parent Society. The meeting adjourned.

Sherwood Content P.O. C. C. LEE,
Secretary.

MANCHESTER: Bellefield.—Meeting, 5.10.34. Present: Mr. J. H. Griffiths presiding, Instructor Darby and five other members. It was recorded with pleasure that the Branch was permitted to hold meetings in the Government Schoolroom. Instructor Darby, who was in the district during the day carrying out demonstrations on several holdings, gave a short talk and again urged the Society to get a supply of tools necessary for proper cultivation. The question of the rejection of over 600 boxes of fruit that week was discussed. Mr. U. D. Phillips pointed out that there was very little hope of future prosperity for the common variety of citrus fruit at present.

produced by the small settlers. The Instructor stated that nothing could be done to prevent such rejection except to urge the cultivation of new varieties to produce fruit required by the markets. The meeting adjourned.

Williamsfield P.O. M. J. Morgan, Secretary.

Ebenezer.—Meeting, 25.10.34. Present: Hon. Charles Reid, M.L.C., Mr. G. D. Fulford, J.P., President, members and visitors and a large number of school children. The Hon. Member inspected the school children. He was welcomed by the President. Instructor Darby introduced Mr. Reid, who addressed the children. He complimented the teacher for her efforts. "*Ambition*" was the chief subject of his talk to the children, and after a vote of thanks from the children, Mr. Reid spoke to the members and visitors. His address was very inspiring, and he assured us that the Government was prepared to give protection to agriculture; the trouble he said was the people won't produce. He advised us as brethren to push ahead, and not to keep back the other fellow from succeeding. Rev. Andrews moved a vote of thanks to Mr. Reid, seconded by Mr. Howe, and supported by Instructor Darby, the President and Teacher Alexander a visitor. Seven visitors gave in their names for membership. The National Anthem was sung to close this very inspiring session.

Spur Tree P.O. L. Fletcher, Secretary.

Mile Gully.—Meeting 28.9.34, with the 2nd Vice-President in the chair. As arising out of the minutes, the "Potato Blight" was fully dealt with. The Instructor gave an interesting and valuable account of its control by spraying and stated the cause was due to an unusual amount of rain. Spraying, he said, is a preventive measure against blight, but not a cure. A new member was enrolled. The delegate to the Half-Yearly Meeting presented his report, for which he was accorded a warm vote of thanks. One Authorised Person reported praedial larceny of oranges in his district. He was on the lookout for the thieves. The Instructor's address on "Congestion" in our fields was well received. Minor matters were dealt with; 10 members and 1 visitor were present. The meeting terminated with the singing of the National Anthem.

Mile Gully. T. A. Morris, Secretary.

Old England.—Meeting 30.10.34. President: Mr. J. T. Gordon, President; nine other members and five visitors, three of whom became members. As matters arising from the minutes, cane culture was again brought up and came in for a lively discussion. The Secretary read Mr. McKay's resolution re sugar industry, from the September Journal. All present decided to go in for the cultivation of canes. Mr. Steele, the teacher, gave an instructive address on the matter, and promised to give whatever assistance he could in the matter. The President asked the Secretary to read the article from the August Journal re the importance of Agriculture, written by the Minister of Agriculture, London. Letter from the M.B.A. re their Half-Yearly Meeting was received. The prize list, etc. of the All St. Elizabeth Show was again scrutinised. The selling of bananas by weight was discussed. Authorised Person reported loss of oranges in the district, but no arrest. The President enquired if the members were using the shear he advised the pruning and spraying of citrus for insuring better fruit. The singing of the National Anthem brought the meeting to a close.

Old England P.O. C. P. Watson, Secretary.

Snowdon.—Meeting 9.10.34. Present: H. E. Lewis, Esq., President; Mr. H. A. Darby, Agricultural Instructor, J. B. Thursfield, Esq., 15 other members and a large number of visitors, including Mr. Arthur Thelwell, Superintendent of Grove Place Farm, who was the special speaker for the afternoon. Attention was drawn to the improvement of the citrus plot, result of adding fish manure. Reference to the proposed Citrus Regulations of clippers and bags for picking fruit provoked much discussion. The timely suggestion of Mr. Thursfield that buyers should select and pick the fruit found favour with the meeting. Mr. Thelwell's lecture on "Utilising and conserving the water in the soil and maintaining soil fertility" was followed with very keen interest. He gave many hints of practical value for which he was heartily thanked. Notice of motion was given for allocating a sufficient sum to improve branch equipment. The President informed the meeting that a new Post Office would soon be opened at Ellen Street. After minor matters were disposed of the meeting terminated.

New Port P.O. Fred. H. Jones, Secretary.

ST. MARY: Belfield.—Meeting 9.10.34. Present: Instructor Chas. D. V. Henderson, P. R. Somers, President; seven members and three visitors. Instructor spoke on

harm done by borers, proper picking of coffee, the proper curing of corn and coffee. Two Authorised Persons reported. Two new members were enrolled. Minor matters dealt with. Meeting adjourned.

Belfield P.O. (Miss) M. L. RENNALLS,
Secretary.

Epsom.—Meeting, October 3rd, 1934. Present: Mr. W. G. Sampson, President, ten members and one visitor. Aurthorised Persons reported on their work. The President gave a brief talk and the meeting adjourned.

Anotto Bay P.O. FRED. A. EDWARDS,
Assistant Secretary.

Marlborough.—Meeting 23rd October. Present: C. D. V. Henderson, Instructor, Mr. Z. Ffrench, President in the chair, 12 other members and one visitor. Secretary reported the transmitting of letter to the St. Mary Parochial Board re Burke Spring water pipe; no reply received. The Treasurer tendered her resignation. The Secretary was instructed to forward letter of thanks for her services, and to ask her to reconsider the resignation. Authorised Persons reported all correct. Badges and handcuffs were presented in good order. Secretary was instructed to take up the matter of delinquent Authorised Persons with the Parent Body. Instructor addressed the meeting on banana pruning and field sanitation. Meeting received with thanks the offer of a plot of land for the planting of Soya Beans by Mr. C. Goodison. Other matters were discussed. Meeting ended with the National Anthem.

Pear Tree Grove P.O. D. AUG. FORD,
Secretary.

Rock River.—Meeting 22nd October. Present: Mr. A. V. Ross presiding, 5 members, the Instructor Mr. Henderson and 1 visitor. The President spoke on the importance of the Society and gave notice that an Authorised Person is to be nominated. This was followed by a hearty lecture from the Isnstructor. He referred to the newly-formed Branch at Highgate, that they were doing well, and that they were proposing to hold a Show in the coming year, to increase interest. The audience agreed to the proposal. He then went on to show some of the good things which are gained from the Society. He told them not to stand still—which means retrograding—but keep moving, which means, progressing. He encouraged the rearing of stock, and showed how they help the small farmer. In his speech he referred to the rearing of rabbits which is very cheap, and the animals give very good manure. He also spoke on the gathering of crops, especially cocoa which is largely grown in the vicinity. Minor matters were dealt with and the meeting terminated with the singing of the National Anthem.

Mt. Regale P.O. J. A. BOWEN,
Secretary.

CLARENDON: Main Ridge.—There was a splendid turn out of members and visitors at the Branch meeting held on the 22nd October. Mr. G. D. Dawkins, President and delegate to the Half-Yearly Meeting gave a very satisfactory report. Messrs. W. L. Shirley and A. L. Virtue, Instructors were warmly welcomed, and great hopes were expressed for Mr. Virtue's usefulness and experience under the guidance of Mr. Shirley. Mr. Virtue gave a fine address, thanking all for the welcome, and promised to do his best. At this stage Mr. Shirley gave his usually interesting and thought-provoking address. He dwelt specially on coffee, dealing with all phases of its cultivation. The address was a masterpiece. He was heartily thanked. Great attention was paid to the coming Agricultural Show to be held at May Pen at Easter. The Instructor made a special appeal to all, to make the Show a great success. 14 new members were enrolled. Delegates were appointed to represent the Branch at the Half-Yearly Meeting of the Clarendon Branches Associated in November. Resolutions re road facilities, etc. were dealt with, also minor matters and the meeting terminated in the usual way.

Trout Hall P.O. (Rev.) M. L. WILLIS,
Secretary and Treasurer.

Blackwoods.—Meeting 11th October. Present: Mr. R. A. Thomas, President; Instructors W. L. Shirley and A. L. Virtue and 11 members. The President introduced Mr. Virtue as Mr. Shirley's assistant and extended to him a warm welcome. Mr. Virtue, replying, pledged himself to do his best. 5 delegates were appointed to represent the Branch at the Clarendon Branches Associated. Resolution to Parochial Authorities, re improvement of road to Elgin was passed. Mr. Virtue spoke fittingly on the proper method of planting citrus. Following, Mr. Shirley showed the necessity of the Branch co-operating to make the All-Clarendon Show a success. He stressed the importance of variety and selection of exhibits. Meeting adjourned.

Thompson Town P.O. H. C. ROBOTHAM,
Reporting Secretary.

ST. ELIZABETH: Springfield.—Meeting 5th October. Present were: Rev. W. J. Driver, President; Instructor Wray and seventeen other members. Matters arising out of the minutes and correspondence were dealt with. The Instructor spoke on the coming Show at Gilnock, the planting and curing of the best varieties of corn, and encouraged the members to balance receipts and expenses of their crops to see if there is sufficient advantage gained. There was a discussion on shade for coffee and the Instructor promised to give an address on the planting of coffee at next meeting. The Instructor was asked to procure fifty orange-buds for demonstration at some of the holdings for members. A plot for the Juvenile Branch was again brought forward and the President promised to let them have it. Minor matters were dealt with and the meeting adjourned after the singing of the National Anthem.

Springfield P.O. J. A. WOODSTOCK, Secretary.

Brompton.—Meeting 25th October. Present: Instructor Wray, 16 members and 4 visitors who became members of the Juvenile Branch. Discussion on the finances took place. Communications were read and dealt with. Delegates were elected to attend the Half-Yearly Meeting of the Parish Association of Branches. A very interesting address was given by Instructor Wray on "Model Community." A vote of thanks was accorded him. The President addressed the Juvenile members. The billy was reported in good order. Authorized Persons reported all correct. The young boar is said to be getting on well. There was a discussion on resolutions to be dealt with at the Half-Yearly Meeting of the St. Elizabeth Associated Branches. The meeting closed with the National Anthem.

Fyffes Pen P.O. E. A. WATSON, Secretary.

Ginger Hill.—Juvenile Branch. Meeting 4.10.34. Present: A. G. Barracks, President; 30 members and many visitors. Matter arising from minutes was the distribution of seeds. It was decided that three nurseries would be made to supply each member with suckers. It was decided that the Branch should combine with Pisgah's Juvenile Branch in staging an Exhibition early next year. Mr. James, Head Teacher, addressing meeting said that if members united they could supply hotels with vegetables, and secure better prices for crops. Some members reported that they had been preparing their plots. Minor matters were discussed and the meeting adjournted with the singing of the National Anthem.

Ginger Hill P.O. L. D. BARRACKS, Secretary.

Retirement.—Meeting held 24th September. Present: Mr. F. Kissendal, 1st Vice-President, presiding, seven other members and a few visitors. The President who was attending other meetings, arrived during the course of the proceedings. Arising out of the minutes, the road across from Retirement through to Harmony Hall etc., was discussed. The Secretary was instructed to write to the Parochial Board again reminding them of their long pending promise re Petition for same. The Secretary was also directed to write to the St. Elizabeth Associated Branches for the loan of the Saanem ram. The matter of medical service, and particularly a trained nurse for the district was fully discussed and it was decided to bring the present question to the proper authorities for their attention. Other items were attended to and the National Anthem sung. The meeting stood adjourned.

Maggotty P.O. H. A. BARRETT, Secretary.

HANOVER: Green Island.—Meeting, 25th October. Present: Rev. A. B. Mullings, President and several members and visitors. Mr. Sangster continued his interesting series of lectures on "Bee Culture" and offered to give to any of the schools a few colonies, and to instruct the children in their care. Mr. Morris gave hints on improvement of membership of the Branch, and suggested (1) Buying of seeds from funds of the Branch and having a competition in connection with their planting. (2) Holding a "White Yam" Competition amongst the members. (3) Forming a Sub-branch at Church Hill. A new member was enrolled. Mr. Webster offered to lend to any member requiring same his castrating instrument and to vaccinate for Anthrax. The Secretary was instructed to write Mr. Webster thanking him for his kind offer. The meeting adjourned with singing of the National Anthem.

Green Island P.O. J. C. WILLIAMS, Secretary.

ST. ANN: Jeffreyville.—Meeting 25.10.34. Present: the President and twelve members. As arising from the minutes:—(a) It was decided to send a letter of condolence to the bereaved family of the late Authorized Person Sterling. (b) It was noted that

the badges of Authorised Persons Sterling and Walker should be taken over. (c) That Affiliation Fee be sent to the Associated Branches and delegates appointed to attend the next meeting of the Associated Branches. A discussion on Duck Ants followed. Instructor gave information as to how thy can be destroyed. Petition re J.P. was read and signed by members. Minutes from the Social Committee were read, discussed and adopted. Excuses from absent members were tendered. Roll Call was taken, and the meeting terminated with the singing of the National Anthem.

Moneague P.O. (Miss) O. M. Lawrence,
Secretary.

Gibraltar.—Meeting 25.10.34. Mr. P. Gager (President), Instructor Robotham and 15 members were present. Information about the Authorised Persons in connection with the Branch required by the Police Department, was supplied to the best of the knowledge of those present.The appointment of delegates to the Half-Yearly Meeting of St. Ann Branches Associated was dealt with. A resolution dealing with the required telephone station at the post office was drafted to be dealt with at that meeting. The Instructor addressed the meeting on Coffee-pulping and curing, showing very lucidly how this should be done and the benefits to be derrived. He was heartily thanked. He invited members to attend demonstrations at Messrs. Christie Samuels and Simpson's places on coffee pulping. The members reported poor result in germination of the Soya Bean. More seeds were distributed to those who did not get at last meeting. The meeting then closed.

Gibraltar P.O. J. E. Brooks,
Secretary.

ST. ANDREW: Gordon Town.—Meeting 27.10.34. Present: Mr. K. A. Clarke, President; Instructor H. C. Miller; Dr. Chamberlain, 12 members and 3 visitors. It was decided that meetings of the Managing Board of the Juvenile Branch would be called as occasion arises, and that the President and Secretary should also attend Committee meetings. Suggestions re entertainment and concerts, to raise funds for the Junior Branch were discussed. It was recommended that all members be asked to subscribe. It was decided to write to the Parent Society asking them for gifts, such as seeds of various kinds, also seedless orange and grapefruit plants. A vote of thanks was given to Mrs. Ilgner for a minute book, given as a present by her to the Junior Branch. There was some discussion on what crops would be best to plant in the anticipated drought next year. Instructor Miller gave a very interesting address on permanent crops, etc. The meeting came to a close with the singing of the National Anthem.

Gordon Town P.O. (Miss) M. C. Duval,
Secretary.

PORTLAND: Claverty :Cottage.—Meeting 13th October. Present: Instructor D. A. Jones, Mr. S. T. Young, presiding and eight members. Authorised Persons H. Haase and E. Wallen reported 3 attempted arrests. Authorised Person R. Moore resigned. The Secretary was directed to write to the Parochial Board re better proportioning of maintenance grant along populous portions of the roadway. The Secretary suggested a Coffee Pool of parchment coffee, which was agreed to. The number of pigs in the district were approximated at 300. The Instructor spoke on the need for increase in membership, benefits of J.A.S. and Branch Societies, Government's desire to protect native industries, obtaining of seedless grape fruit and Valencia orange plants. The Instructor left to demonstrate budding etc. in the school garden and some holdings. A Committee was named to deal with matters re the forthcoming meeting of the Portland Branches Associated.

Skibo P.O. W. T. McKay,
Secretary.

Belvedere.—Meeting 12th October. Present: Messrs. W. A. Coates, President, Instructor Jones, other members and two visitors. Correspondence was read. A Managing Committee was formed. Authorised Persons reported no work done. An address was delivered by the Instructor who expressed delight in seeing some ladies present. He remarked that the telephones, dispensaries, etc., have been got in a great measure through the Society, and the most backward people in Jamaica were those who did not join and utilize the Branches. Reference was made to the local rearing of pigs for the manufacture of hams and bacons; that was a step towards protecting native industry. Portland he said was suited for citrus and he therefore recommended that plantations be made in the lands where banana was waning. The Instructor was heartily thanked. Practical demonstrations of citrus budding were made by the Instructor at the holdings of Messrs. T. G. Dawkins, A. Walsh, J. Walsh. Three new members were enrolled. The meeting terminated with the singing of the National Anthem.

Prior Park. L. C. Blair,
Secretary.

Fruitful Vale.—Meeting October 4. Present: Messrs. J. M. Whiteley, President; Instructor, Jones; forty-three other members and visitors. 13 new members were added to the list. As arising from the correspondence five delegates were appointed to attend meeting of Portland Branches Associated, and resolutions were referred to the Managing Committee. Two Authorised Persons reported all correct. The Instructor gave a very instructive address explaining the importance of agriculture. He encouraged the planting of citrus and dealt with the manufacture of hams and bacon. Minor matters were dealt with and a very interesting meeting were brought to a close by the singing of the National Anthem.

Fruitful Vale P.O. E. C. Wilson,
Secretary.

Moore Town.—Meeting 2nd October. Present: Mr. J. E. Harris, President Mr J. R. Graham, the Instructor and a fairly large number of members and a few visitors. A Committee appointed at the last meeting to consider the purchase of a boar to improve the breed of pigs in the district reported favourably. The meeting decided to purchase a boar. The Instructor promised to carry this through. He addressed the meeting speaking clearly on the unwisdom of people trying to put unfit fruit on the market. After dealing with matters of local interest, the meeting terminated with the singing of the National Anthem.

Moore Town P.O. R. Simeon Anglin,
Secretary.

Swift River.—Meeting 9th October. Present: the President, Mr. A. A. Lecky; Instructor Jones and many other members. Three new members were enrolled. The Instructor said he would like to see every member of the Society taking a lively part in the discussions. He said the Agricultural Society stood for a lot besides the instruction given by the Instructors. It was through this organization that we got Roads, Post Offices, Telephone Service, Police Stations, Medical Aid, etc., in our districts. The Ja. Agricultural Society stands second to none in this Island. But it needed a lot of co-operation to make it the success it should be. Those who can't make success in cultivation can rear poultry and horsekind, etc. When you support the Agricultural Society you are supporting yourself. Mr. C. H. Gray in moving the vote of thanks, asked the members to sympathise with the hard working Instructor by turning out a little earlier to the meetings. He asked that at the next meeting the Instructor would demonstrate at Swift River near his Gas Station at 3 p.m. and at 5 p.m. commence the meeting at Mt. Olivet. The National Anthem closed the meeting.

Swift River P.O. R. C. Gray,
Secretary.

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Other Reports Received.

Branch.	Date of Meeting.	Attendance.	Business.	Secretary.
St. James.				
Salt Spring ..	10.10.34	16	Panama Disease: Purchase of ram.	L. E. Dillion.
Bickersteth ..	4.10.34	9	Delegates to Parish Association Meeting: Discussion.	L. P. Spence.
St. Mary.				
Albany	17.10.34	8	Juvenile Show: Soya Beans; Address by Instructor Henderson.	N. P. Clarke.
Wood Park	10.10.34	30	Panama Disease: Debate: Authorised Persons.	C. L. A. Stuart.
St. Ann.				
Bohemia ..	27.9.34	9	Authorised Persons: Small Stock: Savings Bank.	V. C. Robinson.
Jeffreyville ..	27.9.34	18	Report of Social Committee: Justice of the Peace.	O. M. Lawrence.
Hiattsfield	10.10.34	12	Small Stock: Discussion on Banana suckers: Authorised Persons: Address by Instructor Atkinson.	M. M. Hibbert.
Clarendon.				
Brandon Hill ..	15.10.34	17	Report on Social: Delegates to meeting of C.B.A.: Water Supply: Authorised Persons: Address by Instructor Shirley.	(Miss) E. A. Graham.
Kellitts, Chapelton	12.10.34	..	Grindstone Fund: Road: Delegates for meeting of C. B.A.: Address by Major Moxsy.	(Miss) I. E. Williamson.
Mocho ..	10.10.34	..	Citrus Regulations: Authorised Persons: Addresses by Instructor Wray and Mr. S. Watson.	Thomas Fisher
Mt. Providence	9.10.34	15	Delegates for meeting of C. B. A.: Address by Instructor Shirley.	P. D. Gilfillian
Orange Hill ..	24.10.34	9	Delegates and resolution for meeting of C. B. A.: Authorised Persons: Domestic matters.	C. S. Ryckettts.
Pleasant Valley	16.10.34	40	Local valuator: Addresses by Rev. C. A. Spencer and Instructors Shirley and Virtue: Paper by Mr. Pinto: Solo by Miss Brash.	Mrs. A. A. Flyter
Trelawny.				
Ulster Spring ..	8.10.34	..	Small Stock, Presentation to Instructor Kelly.	I. C. Williams
St. Catherine.				
Springfield ..	9.10.34	24	Report from delegates to Half-Yearly Meeting: Authorised Persons: Address by Instructor Coke	B. A. Forrest.
Victoria ..	20.9.34	33	Election of Officers. Addresses by Instructors Martin and Byles.	M. L. Burrell

Other Reports Received.

Branch.	Date of Meeting.	Attendance.	Business.	Secretary.
Portland.				
Balcarres ..	24.10.34	14	Census of pigs: Authorised Persons: Citrus. Address by Instructor Jones.	(Mrs.) A. V. Nesbitt.
Regale ..	23.10.34	22	Delegates to Conference of Branches: Authorised Persons: Social: Address by Mr. M. H. Gordon.	G. I. Campbell
St. Elizabeth.				
Ginger Hill	19.10.34	23	Water Supply: Delegates for meeting of Assoc. Branches.	Robert L. Gordon.
Kilmarnock ..	9.10.34	12	Nursery: Authorised Persons: Address by Instructor Wray.	J. E. Monteith
St. Thomas.				
Hagley Gap	26.10.34.	15	Mutual Working Aid Scheme Agricultural Garden: Black Ants on citrus and coffee: Delegates to meeting of Associated Branches.	J. B. Heywood
Manchester:				
Comfort Hall	18.10.34	..	Special meeting of farewell to Instructor Kelly: Presentation of addresses and souvenir to Instructor.	W. A. White.
Pike ..	10.10.34	very large	Visit to Kingston to inspect new Producers Association boat: Transfer of Instructor. Authorised Persons. Address by Instructor Thompson.	I. E. R. Green.
St. Andrew.				
Content Gap ..	15.9.34	9	Corn mill: Cane tops.	F. A. Wilson.
Westphalia ..	29.9.34	16	Report on pruning and trenching on one holding: Co-operative marketing of coffee: Authorised Persons.	U. A. Welsh.

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Christmas Messages.

OUR PRESIDENT, HIS EXCELLENCY THE GOVERNOR.

I have pleasure in sending a message to all the agriculturists of Jamaica through the Jamaica Agricultural Society's Journal for December.

The whole prosperity of the Island depends upon our united efforts and in no fields are these more important than in those which produce the main and subsidiary crops of the Colony.

May God grant Jamaica freedom from all those disasters and convulsions of nature from which this beautiful country has suffered so severely in the past.

May 1935 be a year of prosperity and contentment in which every small settler will be able to develop his property to the full, increase its output and be assured of a marketable crop which will give him a good return on his hard work.

I am looking forward very much to visiting the various parishes of Jamaica which will enable me to get into touch with the agricultural work that is being done through the many valuable branches of the Society and better still, afford me the opportunity of talking with and meeting the farmers, of hearing their wants, of seeing their endeavours.

A very happy Christmas to you all and may 1935 be a year of good health and happiness, making for the general prosperity of this fine land of ours.

EDWARD DENHAM,
Governor.

King's House.

THE HON. SIR ARTHUR JELF, Kt., C.M.G.

Colonial Secretary, and Member of Our Board of Management.

Again I have been afforded the pleasure of extending Christmas Greetings to the Jamaica Agricultural Society. As the year draws to a close all our agriculturists must share with me a feeling of thankfulness. We have much to be grateful for, and as I compare the last two years, with their records of hurricanes and floods, I feel that nature has indeed smiled on us during 1934. True, there have been heavy rains in some districts, and some material damage, but these serve to test our courage and perseverance. As all agriculturists know, there is no short-cut or easy route to prosperity.

1934 has been an eventful year for Jamaica. It has seen the President of our Society, His Excellency Sir Ransford Salter, obliged to retire owing to ill-health. Our new President and Governor, His Excellency Sir Edward Denham, arrived in October, and I am sure that all our members join in wishing him good luck, and good weather, during his term of Office.

ARTHUR JELF,
Colonial Secretary.

HON. A. C. BARNES, DIRECTOR OF AGRICULTURE.

Member of Board of Management.

The year 1934 has seen a steady advance of agricultural interests in Jamaica and a marked recovery from the effects of adverse weather conditions which were experienced in 1933. The Jamaica Agricultural Society has made real advances for the benefit of the community, and it is hoped that progress will be maintained to the advantage of all agriculturists in the Island.

The year should close on a note of modest satisfaction with the results that have been attained, realising that constant and unremitting effort is essential to the success of agricultural endeavour. Much remains to be done to consolidate and organize some lines of agricultural activity, while all such industries are capable of expansion and improvement. Closer union of the organizations charged with the care and encouragement of the agriculture of the Island has been brought about during the year, and plans are prepared for still more effective action in the future. The success of such work and the enhancement of the prosperity of agriculturists depend entirely on the response of the community to the instruction and demonstration given to help them.

In expressing best wishes for the festive season and for the coming year, I do so in the hope that we may all work unitedly for the advancement of Jamaica's interests in general and of the agricultural community in particular.

A. C. Barnes,
Director of Agriculture.

HON. R. EHRENSTEIN, M.L.C.

Member of Board of Management.

I have much pleasure in sending through the Jamaica Agricultural Society's Journal, a Christmas Message to the agriculturists of Jamaica.

The past year has been one that we can all look back upon with a pardonable amount of satisfaction and pride. There have been no serious setbacks either from hurricane or drought and the year has witnessed a steady and upward climb of nearly all our Industries from the economic depression of recent years.

In this re-coming, the agriculturists of Jamaica have every reason to be proud of the part they have played. At a time when they might well have lost heart and given up the struggle they faced their apparently hopeless task of cultivating the soil with a grim determination not to be beaten. The result of that struggle is splendidly evidenced by the increased prosperity of the Island as a whole and the spirit of confidence and optimism with which the future is being faced.

Jamaica being for the most part agricultural, it follows that the future of the country of necessity lies largely in your hands, and there can be, I think, no happier augury for your success than the recollection of the courage and ability with which you managed your affairs and surmounted your difficulties in the past.

With heartiest of good wishes for a happy Christmas and an even more prosperous 1935.

R. Ehrenstein.

HON. C. A. REID, M.L.C., MANCHESTER.

Fellow Agriculturists of Jamaica.

Let me take this opportunity through the courtesy of our esteemed Secretary of the Jamaica Agricultural Society of extending to you all my best wishes for a bright and happy Christmas.

Although we have suffered setbacks, let us set our faces toward the dawn of brighter days, always remembering that the same hand that takes is never slow to give—remembering also that our success depends on the amount we produce, and the quality of such products. Let us aim at larger and better production and so insure for ourselves and for the Island the success we hope for.

Let that happiness which flows from the fountain of brotherly love be such as will reach out to the most unfortunate of our brethren, gladdening their hearts and bringing as a result satisfaction and happiness to ourselves. Thus we go forward hand in hand with courage and determination into the New Year which I feel sure has many a blessing in store for those of us who may be privileged to enter thereon.

May your lives be long and useful,
And your hearts be light and tuneful;
May your offsprings live to bless you,
And your skies be ever blue.
This is the wish of yours sincerely.

CHAS A. REID,
Christiana P.O.

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THE JOURNAL
OF THE
Jamaica Agricultural Society.

The more people do the more they can do: he who does nothing renders himself incapable of doing anything; while we are executing one work we are preparing ourselves for undertaking another.

Vol. XXXVIII. DECEMBER, 1934. No 12.

BOARD OF MANAGEMENT.

The regular monthly meeting of the Board of Management of the Jamaica Agricultural Society was held at the office of the Society, 11 North Parade, Kingston, on Wednesday the 7th November, 1934, at 11 30 a.m. There were present: Hon. T. J. Cawley, First Vice-President, presiding, Hon. G. Seymour Seymour, Third Vice-President, Messrs. Sidney Barton, H. E. Lewis, T. P. V. McDaniel, U. Theo. McKay, D. D. Phillips, W. Harper Watson and T. R. Williams; Mr. P. St. L. Bacquie, Supervisor of Instructors, and the Secretary, Glaister Baxter. The Hon. A. C. Barnes, Director of Agriculture (*ex officio*), attended during the course of the meeting.

Apologies for Absence:—

The Secretary stated that he had received a telephonic communication on behalf of His Excellency Sir Edward Denham, expressing regret that on account of a previous engagement he was unable to attend the meeting. A letter, he was informed was despatched, and would probably be to hand before the conclusion of the meeting.

The Secretary also submitted apologies from Rev. W. J. Thompson, and Major G. B. Pease, and a letter from the Hon. A. C. Barnes, stating that he could not attend at the beginning of the meeting but he hoped to be present during the morning session.

The Secretary also stated that on the arrival of the Governor he had forwarded the following letter to him:—

October 31st, 1934

His Excellency Sir Edward Denham, K.C.M.G., K.B.E.,
King's House,
Kingston.

Your Excellency,—I have the honour on behalf of the Jamaica Agricultural Society to welcome you to the colony and to express the wish that you will experience a very happy and successful administration as our Governor of Jamaica.

2. Your Excellency is undoubtedly aware of the history of this Society, which was inaugurated in 1895 by Sir Henry Blake, then Governor of the colony, and the constitution provides that the President of the Society should be His Excellency the Governor. Since that time all the Governors of the colony have graciously accepted this position and the Society hopes that Your Excellency will be good enough to do the same.

3. The meetings of the Board of Management have been for many years graced by the presence of its Presidents whenever they found it possible, and we hope that Your Excellency will find it convenient and pleasurable to attend such of these meetings as are convenient to you. These monthly meetings of the Board of Management are held at 11.30 a.m. on the first Wednesday of each month at the office of the Society and the next

meeting takes place on Wednesday 7th November. I have the honour to attach copy of the agenda for that meeting for Your Excellency's information.

4. Our Half Yearly General Meetings are regularly held in January and July of each year and these have regularly been honoured by the Governor's presence, which is very highly appreciated by the delegates of the Branch Societies, who are the small people's representatives, and also by the direct members. These meetings are usually well attended and offer a very good opportunity for Your Excellency to listen to the agricultural troubles and problems which are brought up by the people, and they in their turn very highly appreciate the close contact with the Chief Executive.

5. These agenda will be regularly forwarded to Your Excellency so that whenever you find it convenient and consider it fit to attend you might do so.

6. I have the honour to assure your Excellency of the heartiest and most loyal welcome should Your Excellency find it at all possible to attend either the regular monthly meetings of the Board or Management or any of the Half-Yearly Meetings of the Society

7. I have the honour to attach herewith copy of the Rules and Regulations of this Society, copy of the latest issue of the Society's Journal, copy of the Secretary's Report presented to the last Half Yearly General Meeting.

I have the honour to be, etc.,
(Sgd.) GLAISTER BAXTER,
Secretary.

Confirmation of Minutes of the previous Minutes.:—

A copy of the minutes of the previous meeting having been sent to each member of the Board, they were taken as read, and on the motion of Mr. McDaniel, seconded by Mr. Phillips, they were confirmed.

The standing orders were suspended and Mr. McKay moved the following resolution:—

"That the Board of Management of the Jamaica Agricultural Society, hereby extends to His Excellency Sir Edward Brandis Denham, K.C.M.G., K.B.E, Governor of Jamaica, and Lady Denham, a very hearty welcome with its best wishes for a most successful regime, and further pledges itself to co-operate with him in everything which makes for the progress of Jamaica, especially its agricultural interest"

This was seconded by Mr. Williams and unanimously carried.

Matters arising out of the previous Minutes.

(a) *Secretary's Statement* was presented as follows:—

"To the Board of Management:

Gentlemen,

All correspondence consequent on the deliberations of the Board at their last meeting has been carried through.

(Sgd.) GLAISTER BAXTER,
Secretary.

(b) *Mr. Watson's Questions re Native Cornmeal.* The Secretary presented the following:—

"1st November

"Gentlemen.

I issued a circular to all the Parochial Boards asking patronage for native cornmeal. A summary of their replies is as follows:—

St. Elizabeth: Already produces its own meal from corn grown there.
Clarendon: Arranged to buy our cornmeal.
Trelawny: Contractor instructed, and is buying from us.
Hanover: Now buying from us.
Portland: Will consider offer when tenders are being considered in March next.
St. Mary: Will consider offer when tenders are next being considered.
St. Ann: Arranging to buy from us.
St. Thomas: Stated they were able to buy at more favourable prices.

We have had no replies from St. James, St. Catherine, Manchester, Westmoreland and the Kingston and St Andrew Corporation.

(Sgd.) GLAISTER BAXTER,
Secretary.

(c) *Mr. Cover's Question re treatment of Panama Disease in St. Ann.*—This matter was deferred as Mr. Cover and the Director of Agriculture were not present.

(d) *Secretary's report on visit to Mid-Clarendon.*—The Secretary stated that he had circulated this report to the members of the Board, and the following were the comments that had been made:—

With my intimate knowledge of the Mid-Clarendon Districts, I am in accord with the Secretary that the cashew and Bombay Mango industry would be of great help to the people living in the area, the cultivation of which would not be an experiment, as the two named products are proven to be well adapted to these districts. Cashew grows wild, while there is a Bombay Mango tree in the Sheckles property, about a quarter of a mile from the Four Paths Railway Station which has been giving good crops yearly.

(Sgd.) D. D. PHILLIPS.
24.9.34.

This very valuable report with its recommendations goes to show the new orientation of the Board of Management and I heartily endorse the report, and as heartily support the recommendations.

(Sgd.) U. THEO. MCKAY,
26.9.34.

I do not seek to belittle the effort or recommendations made in this, but I am under the impression that the Society previously decided on the growing of cashew and Bombay mangoes for this area, and with a view of providing budwood, budding was undertaken on Mr. Logan's property. The question of course, of a demonstration crop for this area is new, and will receive attention in due course.

(Sgd.) C. O. COVER,
28.9.34.

Better enquire into the value of cashew nuts for export before deciding to take up this product for that purpose.

(Intld.) T. P. V. McD.
1.10.34.

(i) Are there any statistics as to population in this area—total and per square mile?
(ii) In the matter of live stock, goats in particular should be encouraged.

(Sgd.) T. R. WILLIAMS,
25.9.34.

Mr. McKay moved the adoption of the report.

This was seconded by Mr. Williams and carried.

Mr. McKay moved that the Secretary take steps to bring into effect his recommendation that an instructoral area be created around Mid-Clarendon and the plains of Vere.

The Secretary said he had taken care of this in his recommendations regarding the revised assignments of Agricultural Instructors.

(e) *Assignments of Instructors Byles, Henderson, Jones, Virtue and Miller.*—The Secretary presented maps on which the districts as numbered below were defined:—

No.	District.	Instructor.	Branches.
1	Upper St. Andrew	A. P. Hanson	13
2	Liguanea & Port Royal Mtns.	H. C. Miller	9
3	St. Thomas in the East	U. A. McLaren	14
4	Eastern Portland	G. R. Graham	17
5	Western Portland	D. A. Jones	16
6	Eastern St. Mary	C. D. V. Henderson	19
7	Western St. Mary	L. A. M. B. Coke	16
8	Eastern St. Ann	C. V. Atkinson	7
9	Western St. Ann	C. M. A. Robotham	16
10	Trelawny	M. N. Thompson	16
11	St. James	W. D. Marr	15
12	Hanover	C. C. Hastings	10
13	Westmoreland	F. W. Kelly	12
14	North-west St. Elizabeth	G. W. Wray	15
15	Southern St. Elizabeth	H. W. Lynch	12
16	Lower Manchester	H. A. Darby	17
17	Upper Manchester	J. A. Graham	17
18	Upper Clarendon	W. L. Shirley	18
19	Lower Clarendon	A. L. Virtue	5
20	St. Catherine	O. P. Martin	14
21	St. Thomas-Ye-Vale	C. O. Byles	13

Some questions on the allocations were asked by members and explanations made by the Secretary.

Mr. Barton then moved that the assignments as defined on the map before the meeting be adopted as the instructoral areas.

This was seconded by Mr. McDaniel and agreed to.

The Chairman suggested that in future the districts be referred to by numbers as noted on the map, and that a copy of the map be kept on the walls of the Board Room for reference. He also asked that the lists of Branch Societies in each Instructoral District and in each parish which were also before the meeting, be circulated to the members of the Board, and he suggested that members of the Board attend Branch Meetings whenever they could make it possible, as from experience he had found that the presence of members of the Board and the Secretary at these meetings had a decided influence for good on the work of the Branches.

Estimates:—

It was decided that as there was not enough time at the disposal of the meeting to go thoroughly into this matter, a copy of the proposed Estimates should be sent to each member, and a meeting of a Committee of the whole Board be called to deal with this item, three to form a quorum.

Statement of Accounts:—

(a) *Statement for September.*—The Secretary stated that this had appeared in the minutes.

(b) *Statement for October* was submitted as follows:

STATEMENT OF ACCOUNTS FOR OCTOBER, 1934.

Receipts.	Estimates. £ s. d.	Total. £ s. d.
To Subscriptions	175 0 0	122 19 5
Affiliation and Journal Fees	175 0 0	162 3 0
Advertisements in Journal	200 0 0	60 7 0
Bank Interest and Sundries	10 0 0	7 9 4
Miscellaneous: Entrance Fees etc.	10 0 0	3 7 0
Bee Industry Sales	30 0 0	23 15 5
Sales Dept., Profits for 1934-35	400 0 0	..
Government Grant	9,500 0 0	5,541 13 4
Grant for Bee-keeping Industry	500 0 0	291 13 4
Appropriation from Sales Dept. Surplus	516 15 0	6,213 7 10
	£11,516 15 0	£6,213 7 10
Balance from 31st March, 1934	..	1,877 4 8
Nethersole Presentation Fund		0 2 0
Entrance Fees Holdings Competitions: (transferred to Miscellaneous)		..
Refunds of Advances	..	366 0 0
Hire of Show Equipment	..	9 14 0
Shows A/c Deposits, etc.	..	23 2 6
Seeds Trading Account		2,206 2 10
		£10,695 13 10
Less Expenditure—(per contra)		9,788 18 6
Balance	..	£906 15 4
Cash in hand	0 1 8	
Cash at Barclay's Bank, Current A/c.	0 19 2	
Cash at Barclay's Bank, Deposit A/c	500 0 0	
Cash at Royal Bank of Canada Deposit A/c	325 0 0	
Cash at Royal Bank of Canada, Current A/c	80 14 6	906 15 4

Expenditure.	Estimates. £ s. d.	Total. £ s. d.
By Personal Emoluments:—		
Secretary and Office Staff ..	2,014 5 0	1,184 7 0
Instructors' Salaries ..	7,482 10 0	4,524 11 10
Instructors' Course at Hope ..	125 0 0	84 2 9
Instructors' Contingencies	100 0 0	77 13 1
Secretary's Office, and Special Travelling	100 0 0	93 19 3
Printing and Stationery ..	100 0 0	86 10 8
Printing and issuing Journals and Reports	750 0 0	359 11 1
Rent and Rates	58 0 0	32 10 5
Rent of Telephones .	27 0 0	15 10 8
Postages and Telegrams .	10 0 0	6 9 6
Office Furniture· Repairs .	15 0 0	9 7 4
Incidentals	50 0 0	29 1 6
Auditor's Fees	25 0 0	25 0 0
Library Books	10 0 0	10 1 2
Experiments and Livestock Subsidies	100 0 0	42 11 9
Show Equipment. Maintenance and Repairs	10 0 0	7 1 2
	£10,976 15 0	£6,588 9 2
Bee-keeping Industry	500 0 0	333 19 0
New Office Equipment .	40 0 0	61 17 2
	£11,516 15 0	
Shows Account Printing, etc.	.	12 7 6
Gratuity: Mrs. Barclay .	.	33 0 0
Advances to Instructors .	.	435 0 0
Nethersole Presentation Fund	.	9 0 0
Holdings Improvement Competitions		194 1 8
Local Competitions		7 11 7
Plant Diseases Control .		26 10 0
Seeds Trading Account .		2,087 2 5
		£9,788 18 6

(Sgd.) GLAISTER BAXTER,
Secretary and Treasurer.

(Sgd.) DONALD McDONALD,
Accountant.

Communications:—

(a) *Letter from Director of Agriculture re appointment of Committee on the Cattle and the Dairy Industries.*—The Secretary read the following letter:-

No. By: 287. 8th October 1934.

"I have the honour to inform you that the Officer Administering the Government has appoined two Committees to investigate the Cattle and Dairy Industries in Jamaica and to make recommendations for the better organisation of production and the marketing of the products of these indutries. The members of the committee on the Cattle Industry are: Hons. G. S. Ewen, and D. T. Wint, Mr. T. R. Williams, Captain P. Blagrove, M.C., with the Director of Agriculture as Chairman.

The Committee on the Dairy Industry consists of Hons. Dr. J. W. N. Hudson and P. W. Sangster, Mr. V. E. Manton, Mr. A. V. Kingdon and the Director of Agriculture as Chairman.

On behalf of these two Committees I invite the Jamaica Agricultural Society to submit its views on the subjects under reference and to nominate gentlemen to appear before the Committees to make statements and discuss the various questions involved with the Committees."

(Sgd.) A. C. BARNES,
Director of Agriculture.

The Secretary stated that the matter of these industries had come up at the previous meeting and had been referred to the Live Stock Committee to whom he would submit the letter.

The Board agreed.

(b) *Letter from C.S.O. re Storage Bins, etc.*—Letter No. 5771/34 dated 23rd October, 1934, was submitted acknowledging the communication from this office regarding the erection of a Dehydrating Plant with Storage Bins for the curing and storing of grains, and stating that the matter was receiving attention.

This was noted.

(c) *Letter from Messrs. I. C. Maynier re Dehydrating Plant for handling corn.*—The Secretary read the following:—

5 West Street and 179 Harbour Street,
Kingston, October 30th, 1934.

"We understand that at a recent meeting of your Board of Management a resolution was passed asking the Government to place on their Estimates a sum for the erection of a dehydrating plant for the handling of native corn by your Society. May we point out that we deal largely in native corn, and that for several years we have been supplying the Public Works Department in various parishes with some We are now importing and fitting up a dehydrating plant with the necessary equipment for handling and storing corn in larger quantities than we have done heretofore. We think that some agreement could be arrived at between us to the advantage of the grower, whereby the grower would receive a fixed minimum price for his corn, provided that the Government are willing to continue, and possibly extend their policy of helping the native industry by using as much of the home-grown product as possible

We should be glad to have an interview with representatives of your Board at as early a date as possible to see if some working arrangement could be formulated on the above lines. We are writing to the Government on the subject."

(Sgd.) I. C. MAYNIER & Co.

After some discussion it was decided that a Committee consisting of the Hon. T. J. Cawley, G. Seymour Seymour, A. C. Barnes, Director of Agriculture, Messrs. Sidney Barton, U. Theo. McKay, T. P. V. McDaniel and T. R. Williams, be appointed to interview Messrs. I. C. Maynier and Co., as they requested.

The Secretary said the meeting would likely take place on Tuesday, the [illegible] November.

(d) *Letter from Produce Advisory Board re Honey Regulations.*—A letter was submitted from the Secretary of the Advisory Board under the Agricultural Produce Law 1926, stating that that Board considered the request from the Society that the Regulations governing the buying and selling of honey be amended, and that the Advisory Board were prepared to grant the request.

This was noted.

(e) *Letter from Inspector General re Produce Licenses.*—The following letter was submitted:—

No. 1233. 4th October, 1934.
J.A.S 5329/34.

"With further reference to correspondence ending with your office letter No. 287 dated 25th September, 1934, I beg to ask whether the Special Committee of your Board of Management would be inclined to support legislation modelled on the following:—

2. All trucks and carts employed in the carrying of bananas and other produce except those actually owned by growers themselves and engaged bona fide in carrying produce from the property of such owners, shall be required to be licenced; the suggested tax being £5 for the trucks, and £2 for the carts per annum.

3. These vehicles would be licensed for "carriage and purchase of produce in Class 2," and the driver or operator would be required to keep a Produce Book giving the particulars now required at the Licensed Premises. In other words each vehicle would be a Licensed Premises. They would be licensed for a certain area and only be allowed to trade in such area, being inspected and allotted a district by an Inspector of Agricultural Produce.

4. I would point out that the suggestion is based on the fact that the fruit must be brought to some point for shipment and practically all the Police would have to do is to go occasionally to these points and inspect the vehicles bringing in Produce. People who own a large acreage of bananas are well known, and any one seen constantly bringing in large numbers of bananas in an unlicensed produce vehicle, and who was known not to possess the acreage to produce such quantities, would be watched and prosecuted.

5. I am of opinion that if this proposal was adopted there would be manifest advantages,

i.e., increase to the Revenue, simple check by the Police on unlicensed dealers, and, by means of the Produce Book, on Praedial Larceny.

6. I agree with Sections 1 and 4 of the Report of the Committee."

(Sgd.) O. F. WRIGHT,
Inspector General.

On the motion of Mr. McDaniel, seconded by Mr. Lewis, it was decided that copies of the letter should be forwarded to the members for their consideration and that the matter be further considered at a future meeting.

Mr. Seymour suggested that if there should be any increase in the taxation of motor vehicles it should be borne in mind that such funds should go to the Parochial Boards.

Mr. Lewis asked if anything had been done with regard to the issue of Produce Licenses for a half-year as from April and October instead of as from October alone.

The Secretary stated that he had brought up the matter at a meeting of the Produce Board and it was being taken care of.

(f) *Letter from C.S.O. re Tree Planting and Barking of Trees.*—The Secretary read the following letter:—

No. 863/32. 11th October, 1934.

"With reference to paragraph 3 of the Report on Tree Planting in St. Andrew for the half year ended 30th June, which was forwarded under cover of your letter C.S.O. No. 28 dated the 5th September, 1934 I am directed to enquire whether Law 17 of 1929, the Sale of the Bark of Trees (Prevention) Law, 1929, has had any deterrent effect on the barking of trees, and whether you recommend that any other trees should be added to the Schedule of the Law.

(Sgd.) P. G. DUFF,
for Acting Colonial Secretary.

The Secretary said he had issued circulars to the Instructors on this subject but all the replies were not yet to hand.

The matter was deferred.

(g) *Letter from Jamaica Society for Prevention of Cruelty to Animals re Veterinary work by Instructors.*—Letter from this Society was submitted, stating that Veterinary First Aid Cases had been supplied to Instructors Atkinson and Robotham and that ways and means that might be employed to teach the people the economic value of treating their animals with kindness and care had been discussed with Supervisor Bacquie. The letter also conveyed the sincere thanks of the Committee to the Board of Management for their co-operation in the work.

The letter was noted.

Mr. McKay said the good work that was being done by the Society for the Prevention of Cruelty to Animals was much appreciated by the Jamaica Agricultural Society and it was hoped that it would continue. It would be well if it was brought to the attention of the Police that cruelty to animals was not only the working of animals with sores, but also the brutal flogging of animals indulged in by many persons, often in the presence of Police officers who did nothing apparently because the animals were free of sores, etc.

The letter from the Private Secretary to His Excellency the Governor referred to earlier during the meeting having come to hand, was read as follows:—

King's House,
6th November, 1934.

"I am directed to acknowledge and thank you for your letter No. 9 of October the 31st. His Excellency much regrets that he is unable to be present at the monthly meeting of the Board of Management on Wednesday next the 7th inst. He particularly desired to attend, but he had already made arrangements to receive two deputations on

Wednesday morning at 11.30 and 12 o'clock as and as those who would be attending are coming from considerable distances it was too late to fix another date when the Governor learnt that your meeting would be on the 7th.

His Excellency desires to be present at the next monthly meeting and hopes it may be possible to arrange it so that it will not clash with the meeting of the Legislative Council.

I am to assure you of the Governor's great interest in the work of the Jamaica Agricultural Society of which he has heard so much and which he hopes to serve as its President. I shall be glad if this letter may be laid before your Board at to-morrow's meeting."

(Sgd) JERMYN RUSHBROOKE,
Commander, R.N.,
Private Secretary.

Mr. Barnes came in.

Mr. Barnes said he had been charged by His Excellency the Governor to apologise for his absence at the meeting. His Excellency had told him that he was particularly anxious to be at this the first meeting of the Board held since his arrival in the island, but owing to the pressure of official duties, it was not possible for him to be present. His Excellency had asked him to suggest to the Board that their next meeting should be held either on a Monday or a Friday when the Legislative Council would not be sitting in order that he would be afforded an opportunity of attending. He had told His Excellency that he was quite sure that the Vice-Presidents and members of the Board would welcome very much His Excellency's kindly interest in the affairs of the Society, and that they would be delighted to see him whenever it was possible for him to attend.

Mr. Barnes was thanked for conveying the message from His Excellency.

The Secretary was instructed to thank His Excellency for the letter and also for the message sent to the meeting through Mr. Barnes and to state that the Board would be extremely pleased to have His Excellency attend the next meeting, which would take the form of a special meeting and would be held on the 7th December next.

(h) *Letter from Messrs. J. Parkinson and H. Cocking, covering portrait of the late John Barclay, O.B.E.*—The Secretary read the following letter:—

Kingston
October, 23rd, 1934.

"As personal friends of the late John Barclay, O.B.E. and direct members of the Jamaica Agricultural Society, with which organisation this gentleman was connected for nearly forty years, thirty of which he served as its Secretary, we shall be pleased if the Board of Management will accept the accompanying picture of Mr. Barclay to be hung on the wall with the others that now adorn it. It is unnecessary for us to recall the wonderful work which the late Mr. Barclay did for the agricultural development of the colony, and we feel sure that the placing of this picture amongst others who have done so much for the Island in this direction, will meet with the approval of all the members of your Society."

(Sgd.) HAROLD COCKING and
J. F. PARKINSON."

The Secretary was instructed to forward a letter to Messrs. Cocking and Parkinson, expressing the appreciation of the Board for the picture which they so kindly presented. The picture was hung on the walls of the Board Room.

Reports from Committees.

(a) *Planning.*—The following report from the Planning Committee was submitted.

Kingston,
5th November, 1934.

To the Board of Management:

Gentlemen,

Your Planning Committee met on Wednesday, 31st October and again on Wednesday 7th November, 1934 and beg to recommend for your adoption the following:—

1. With reference to resolution referred to us from the Board regarding the establishment of demonstration farms it is recommended that six such demonstration farms be established under the control of the Department of Science and Agriculture with joint supervision by that Department and the Jamaica Agricultural Society. Such supervision to be carried on in accordance with the policies decided on by the two organisations. That the Director of Agriculture be asked to provide for the necessary cost on his Estimates. That acreage of approximately two acres be considered suitable for the size of these farms. That the object of these farms should be to demonstrate the proper growing of crops already established in the various areas and such other crops as are known to be suitable to the area. That the tenure of the lands for these farms—if not Government lands—should be for seven years with the option of extending such tenure if found desirable. That the locations of the farms should be as follows:

Clarendon—Kellits area.
St. Catherine—Brown's Hall area
Portland—Rio Grande Valley area.
Hanover—Great Valley area.
Manchester—Christiana area.
St. Mary, Highgate area.

That the wage of the man for working any of these farms should not exceed £1 per week. That the planning of the details of these farms should be done by the Hon. Director of Agriculture and the Secretary of the Jamaica Agricultural Society and submitted to the Board of Management through the Planning Committee. That it was also desirable that an experimental farm be established in the Toll Gate area of Mid-Clarendon with a view to learning the possibilities of various crops for that inhospitable district.

Your committee considered offers referred to them by the Board of Management from Mr. A. E. T. Vermont, of land at Blackstonedge for a demonstration plot and from Instructor Byles of his citrus orchard at Linstead for the purposes of demonstration. Your committee recommends that Mr. Vermont be thanked for his offer and be informed that his offer will be considered when the details of the proposed demonstration farms are being considered and that Mr. Byles' offer be declined with thanks.

2. Your committee considered resolution referred to them from the Board with reference to propaganda with agriculturists for better cultivation, and also another resolution referred from the Board regarding propaganda for increasing the membership of the Society. The committee recommends that as both these objects are now being undertaken, that no further action on these resolutions seem necessary.

3. The committee dealt with resolution referred to them from the Board with reference to the development of the Vegetable Growing Industry, and recommend that the Government be asked to provide a packing house for the encouragement of the export of vegetables and that such packing house could be in conjunction with the Government Experimental Cold Storage Plant, and that the Society should co-operate in the matter.

4. Your committee considered draft instructions re the sowing of seed, and the culture of vegetable crops. to be printed on seed packets, which emanated from a suggestion by Instructor Thompson. They recommend that the suggestion be adopted and the printing on the seed packets be carried out.

5. The committee considered the returns of zoning survey from Instructors Hanson, Lynch, Martin, Byles, Coke and Henderson, and recommend that these surveys be carefully filed in a jacket file and that a copy of the summary be sent to the Hon. Colonial Secretary for the information of the Government.

In view of the fact that these surveys were disclosing the inadequacy of the existing staff of Instructors to meet the needs of the people for agricultural education, the committee recommends that six additional Agricultural Headmen be appointed at the beginning of the coming financial year, and that provision on the Estimates be made for this.

6. Your committee begs to report that a Bombay mango plot has been started at Fullerswood Park in St. Elizabeth, and one has just been started at Ehren in Clarendon.

7. That a peanut trial plot and a Peanut Competition financed by the Hon. P. W. Sangster which is already approved by the Board has been started.

8. That Instructor Virtue is now undergoing a short course of training in citrus culture and citrus packing at Trout Hall the property of Messrs. F. G. Sharp and Co., and that Mr. Sharp has offered to give a somewhat similar course to any Agricultural Headman the Board may appoint.

The committee recommends to the Board that a letter of thanks be sent to Mr. Sharp for his kindness in reference to this matter.

(Sgd.) A. C. BARNES, (Chairman).
" U. THEO. McKAY
" T. PERCY V. McDANIEL.
" T. R. WILLIAMS
" P. ST. L. BACQUIE
" GLAISTER BAXTER.
Secretary of Committee.

Mr. Barnes moved the adoption of the report. This was seconded by Mr. McKay.

After some discussion on the recommendations regarding Cold Storage and the appointment of additional Headmen, the report was adopted.

The Secretary was instructed to visit the areas being worked by the three Agricultural Headmen now employed by the Society, and report on their work at the next meeting.

The meeting a 'journed for luncheon.

On the resumption there were present: Hon. T. J. Cawley, in the chair, Messrs. McDaniel, McKay and Watson, Supervisor Bacquie and the Secretary.

As the attendance did not constitute a quorum it was decided to deal with the matters that nee'e l no discussion and asked for confirmation when there was a quorum.

The following were dealt with:—

(c) *Bee Industry (Emergency meeting).*—The following report was submitted and received.

To the Board of Management:—

Your Bee Industry Committee held an emergency meeting on Tuesday the 23rd October at 9 a.m. as it was considered necessary to deal with a Report from the Bee Instructor of the discovery of Pickled Brood in the Hylroy Apiary, and subsequently similar discoveries in other apiaries on the Liguanea.

The affected hive at Hylroy was destroyed immediately the discovery was made.

Your Committee decided to issue a statement to the Press and cause an article to be written by the Bee Instructor on Pickled Brood and kindred bee diseases for publication in the Gleaner and the Journal of the Jamaica Agricultural Society.

No serious developments have since taken place, but the inspection of bees on the plains of the Liguanea, St. Catherine and Western St. Thomas is being carefully and continuously carried out by the Bee Instructor.

(Sgd.) GLAISTER BAXTER.
Secretary of the Committee.

Office:—

(a) *Leave: Miss Hanson.*—The Secretary stated that he had granted 2 weeks leave as from the 8th to the 20th October to Miss Hanson who had been ill and had presented a Doctor's certificate.

This was noted.

(b) *Miss J. Robertson:*—The Secretary reported that he had granted leave to Miss J. Robertson as from the 24th to the 30th October.

This was noted.

(c) *Application from Miss M. Robertson for one month's leave.*—Application for leave as from the 19th November for one month was submitted on behalf of Miss M. Robertson.

On the recommendation of the Secretary, this was granted, on full pay.

Diseases of Plants and Animals: Insect Pests.

(a) *Panama Disease of Bananas Reports for July and August.*—The Secretary laid on the table reports on the Panama Disease of Bananas for the months of July and August and advised the Board that copies had been forwarded to individual members of the Board.

Mr. Lewis came in, and the proceedings so far were outlined to him and confirmed.

Report from Cane Farming Committee.—The following report from the Cane Farming Committee was presented:—

17th October, 1934.

To the Board of Management.—

Your Special Committee appointed to make the necessary enquiries in the matter of cane farming in Jamaica and to make such recommendation as will help this industry

met under the Chairmanship of Mr. U. Theo. McKay, on the 10th October, 1934, at 10-30 a.m. at the Office of the Jamaica Agricultural Society. There were present: The Chairman, Mr. U. Theo. McKay, Major A. R. Moxsy and Mr. H. R. Sharp.

Your Committee recommends as follows:—

1. That it is desirable in the interest of the expansion of cane farming that sugar factories be compulsorily required to reserve a percentage of their factory capacity for the manufacture of canes produced by cane farmers.

2. That this percentage be 25 per cent. of such factory capacity, of which 20 per cent. should be reserved for contract farmers and 5 per cent. to be reserved for non-contract farmers.

3. That this reserve percentage should not include cane grown by tenants on any land the property of the factory owners.

4. That the price for cane to be paid to cane farmers should be on the 5 per cent. basis when sugar prices were not over £8 per ton, and when sugar prices are over £8 per ton, there to be paid on additional 6d. per ton on the price computed on the 5 per cent basis for non-contractors and an additional 9d. per ton for contractors for every £1 per ton increase on the price of sugar over and above £8, and that the price of sugar should be arrived at by calculation on the average market quotation each month.

5. That the Jamaica Government Railway should be approached and with a view of establishing such rates for the transportation of cane as will encourage the expansion of the cane farming industry. And that the Railway authorities be impressed as to the desirabilty for the earliest despatch of canes after loading, as it was in the knowledge of your Committee that delay in the despatch of canes causes such deterioration as to seriously affect the value of the cane for manufacture.

6. That cane farming for the supply of sugar factories be only encouraged in localities that are suitable for its economic production, both as regard suitability of soil and proximity to factories.

7. That a recommendation be made to the Government for exploiting the possibilities of obtaining credit for such factory owners as may need such assistance to make their factories up-to-date and efficient for the recovery of the sugar from the cane.

8. The Committee should like to record their recognition of the good work that has and is being done by the Jamaica Imperial Association in the matter of getting an increased quota for the British West Indies, and would urge that any increase of quota obtained, be allowed to factories which were willing and able to come to the assistance of cane farmers and that such factories should have first consideration in the allotment of the quota.

9. The Committee recommends that it is desirable as a means of furthering the cultivation of proper varieties of cane all over the Island, that wherever possible Demonstration Farms should be established to demonstrate to cane farmers proper varieties of cane to grow, and also that unsuitable varieties should be grown as an object lesson. Your Committee feels that if such Demonstration Farms were properly administered they would be self-supporting.

(Sgd.) U. THEO. MCKAY, Chairman.
GLAISTER BAXTER,
Secretary of Committee.

Mr. McKay moved the adoption of the report and this was seconded by Mr. Watson.

The report was adopted, and after some discussion the Proposal from Mr. McKay that the Committee meet the Sugar Board to go further into this matter, was agreed to. It was also decided that a copy of the report should be forwarded to the Sugar Board.

Citrus Industry:—

(a) *Letter from Messrs. D. Henderson and Co., Ltd., re Gloves.*—Letter from Messrs. D. Henderson and Co., covering a communication from that firm to the C.S.O. was submitted to the effect that they had imported Citrus Pickers' Gloves on which the Postal Authorities were demanding special duty claiming the article to be "apparel" and as such liable to the specific tax provided in the Tariff Amendment Law (Law 14 of 1932).

The Chairman suggested that a Resolution should go through from the Board and a member of the Legislative Council asked to take up the matter in the Council.

Mr. Lewis pointed out that the article should be included under Agricultural Implements and imported free of duty.

Mr. McKay suggested that enquiries should be made as to whether the gloves could be obtained from British sources, and if this could not be done, steps should be taken to import the article free of duty from other sources.

(b) *Letter from Rev. E. B. Baker re Citrus buds.*—The following letter was submitted:—

Montego Bay,
October 9th, 1934.

"I wonder whether you know as a fact whether buds from any given tree produce trees having exactly the same, or nearly the same qualities as the parent tree?

If buds come "true," *but not otherwise*, I want to suggest most seriously to the Board of Management that the Society should institute a Competition with money prizes with the object of finding out where the "prefect Jamaica orange" is located.

The owners of the best three trees in each parish might be given prizes of £1., 10s., and 5s. Their fruit would then be put in competition with the best fruit from other parishes, and the winner should receive a large sum for his tree, which should become the property of the Department of Agriculture, which should provide budwood. Before many years the perfect Jamaica orange would be famous throughout the world, and might result in the citrus industry taking a premier position in the Island.

If—and there is always an "if"—if they come true, it seems sheer madness not to do something of the sort."

(Sgd.) E. B. BAKER,

The suggestion was thought a very good one, and it was decided to submit the proposal to the Director of Agriculture for his views and to direct the Instructors to report on whatever exceptional varieties they encountered.

Instructors Committee—Report.:—

The standing orders were suspended to admit the consideration of certain matters referred from the Instructors Committee which sat that morning. The following report was presented:—

7th November, 1934.

To the Board of Management:—

Your Instructors Committee met at 10 a.m. to-day and recommend as follows:—

1. That Assistant Instructors Henderson, Jones, Byles and Virtue who were confirmed in their appointment at the October meeting be placed on the higher rate of salary from 1st October, i.e., £275 per annum..
2. That a list of the Branch Societies with their membership in each Instructor's district be published in the Journal once a year.
3. That Instructors in citrus districts be directed to pay special attention to the top-working of standard varieties to meet the increase demand for seedless fruit in the English market.
4. That the following applications for affiliation as Branches be approved.—Lennox-Bigwoods (Westmoreland); Tydixon (St. Catherine).

(Sgd.) GLAISTER BAXTER,
Secretary of Committee.

Mr. McKay moved the adoption of the report.

This was seconded by Mr. Cawley and carried.

With regard to the recommendation about citrus after some discussion Mr. McKay gave notice that at the next meeting he would move:—

"That steps be taken to make arrangements for Mr. McDaniel to go to first class citrus areas to give suitable lectures and demonstrations to the Agricultural Instructors on the top-working of citrus."

Small Stock (Subsidy):—

(a) *Letter from Leicesterfield Branch.*—A letter from the Leicesterfield Branch was submitted, to the effect that Instructor Thompson had given the Juvenile Branch a Leghorn-Rhode Island hen, and requesting that a pure bred Leghorn rooster be given to the Branch or supplied at half-cost.

It was agreed that a rooster should be supplied at half-cost and the Branch advised to obtain a pure bred hen to start with.

Shows:—

(a) *Letter from Darliston Branch.*—Letter from Darliston Branch was submitted, advising the postponement of their Show from Easter Monday 1935 to the 24th May, 1935.

This was noted.

(b) *Letter and resolution from Dry Harbour Mtns. Show Committee.*—The Secretary read letter and resolution from the Dry Harbour Mountains Show Committee, deprecating the action of the Board in sanctioning the holding of the Clarendon Show on Easter Monday, 1935, the date already booked for their Show.

It was decided that the Dry Harbour Mountains Show Committee be informed that in considering the application from the Clarendon Show Committee, the Board was of the opinion that the holding of the second Show would not materially affect the success of their Show.

(c) *Application from Bellas Gate for Grant.*—A letter from the Bellas Gate Branch was presented, stating that owing to weather conditions their Show had not been the financial success anticipated, and requesting that a grant be made towards their Show funds.

The Secretary stated that the function had been more in the nature of an exhibition than a Show. He also presented a financial statement from the Branch.

After some discussion it was decided that a grant of Two Guineas be made, provided a statement of the proposed allocation of the sum was submitted; the Secretary to submit a report on the matter to the Board.

It was stated that this action would not be considered as creating a precedent.

The increase of the membership of the Society was mentioned and Mr. McKay asked what was the liability of the increased membership to the Society.

The Secretary stated that it was 2/- per Branch member, but the increase of direct members was not a liability.

The Secretary was asked to prepare a statement for the next meeting showing what would be the estimated expenditure on this item for next year.

Authorised Persons:—

(a) *Return of Arrests.*—The return of arrests made by Authorised Persons for quarter ending 30.9.34, was submitted and the Secretary instructed to publish a summary of same in the Journal.

New Members:—

On the motion of Mr. McDaniel, seconded by Mr. McKay, the following were unanimously elected members of the Society:—

A. A. Draghten, P. O. Box, 331, Paramaribo, Surinam, Dutch Guiana.
A. M. Bonitto, Beechwood Avenue, Cross Roads.
Louis Dejoie, Ingenieur Agrinome, Station Experimental, Fonds Des Negros, Haiti.
Mrs. Kumm, 65 Lady Mugsgrave Rd., Cross Roads.
Major Pindar, 10 Officers' Qrts., Up-Park Camp.
L. Arpin, Tobacco Specialist, Farnhum, Province of Quebec, Canada.
M. S. Metzen, M.B.E., Broadwater Park, Belize, Br. Honduras.
D. O. Nairn, C/o Johnson & Co., Port Antonio.

Other Business:—

(a) *Letter from Instructors Association.*—Letter from the Instructors Association stating that the object of their request for the receiving of a deputation was to discuss pensions to retired Instructors Banks and Buckley.

It was agreed that the deputation be received at 9 a.m. on the day of the January meeting.

(b) *Application from All St. Elizabeth Show for services of Instructors*—Letter from the St. Elizabeth Show Committee was read asking for the services of Supervisor Bacquie and Instructors, Lynch, Wray, Darby, Thompson and John Graham.

It was decided that this request be granted on the Show Committee complying with the requirements as laid down by the Rules.

(c) *Application from Pedro Branch for vegetable seeds for Juvenile Branch* was granted after the Secretary asserted that grants of a similar kind had been made, all under a cost of five shillings each.

(d) and (e) *Invitations from the Clarendon Branches Associated and the Westmoreland Branches Associated* to the members of the Board to their meetings scheduled for November 16th and December 12th, respectively, were noted.

(f) *Letter from Instructor McLaren,* covering a letter from Mr. E. Alex. James of Sunning Hill, a member of the Airy Castle Branch, offering a spot for the establishment of a Coffee Nursery, was directed to be referred to the Director of Agriculture.

(g) *Letter from Messrs. D. J. Scott & Co. of London,* offering at the instance of Mr. Cyril C. Henriques, cash prizes amounting to £25, to carry through a Ginger Competition in order to raise the standard of the quality of Jamaica Ginger, was considered. Samples of ginger produced in Nigeria from Jamaica ginger plants, were also examined.

There was some discussion on the subject and it was decided that (*a*) the thanks of the Board should be forwarded to Messrs. Scott and Co.: (*b*) that the Secretary should obtain further necessary details from the firm: (*c*) that the experts on the Ginger Industry in the Island should be asked to assist by giving as much instruction as possible to the field staff of the Society and to the growers of this product.

(h) Resolution from the Hectors River Community Club supporting an Anti-ganga Campaign, was received.

(i) *Resolutions from the Clarendon Branches Associated* were dealt with as follows:—

(*i*) The request that a telephone be installed at the Colonel's Ridge Post Office tbe referred to the Postmaster for Jamaica.

(*ii*) The Secretary was directed to forward the request for a Police Station at Thompson Town, to the Inspector General.

(*iii*) The resolution asking for nurseries at a central spot in the parish for the continuous supply of Citrus, Canes, Cassava, Sweet Potatoes, Plantains, etc., in standard varieties, to be referred to the Planning Committee.

(*iv*) The Secretary was instructed to forward the resolution regarding the appointment of a District Constable for the Johns Hall and surrounding districts to the Inspector General.

It was brought to the notice of the meeting that an assertion had been made in the Press that the First Vice-President got the Instructors and the Secretary of the Society to go about with him and hold political meetings.

Mr. McDaniel and Mr. McKay expressed the view that the thanks of the Society were due to Mr. Cawley for the interest he was taking

in the Society and for the improvements which were directly traceable to his personal influence. It was brought out that the Branch membership in St. Catherine had increased from 595 to 997 since the Secretary and the members of the Board resident in the parish, namely, Messrs. Cawley and McDaniel, had been paying visits to the Branches.

Other members expressed the opinion that the statement should be treated as an election stunt, which doubtless it was.

The First Vice-President was commended for all he had done in the past for the improvement of the Society and asked to continue his good work.

The meeting then adjourned.

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IN THE GARDEN.

By E. J. Downes, Government Horticulturist.

The highest personal note in the art of landscape design is the flower garden, and no scheme of landscape development is complete, no matter how small the property, which does not provide space for a garden. It is in the garden that our individual fancies as to choice and arrangement of flowers may be indulged. There we may have a profusion of flowers, harmony of colour, charm of effect and, above all, seclusion and restful quiet, for growing of flowers is indeed the simplest yet the most satisfying of pleasures. The dimensions and shape of the garden are matters which will be influenced more or less by the residence and contour of the ground. When planning the garden, the amount of care necessary for the proper upkeep should be borne in mind and the space designed accordingly, as it is necessary that the garden should at all times be in as nearly perfect condition as possible.

Floral Arrangement.

In the selection and arrangement of the flowers a great deal of liberty may be exercised and personal tastes indulged. The best planned and most enjoyable gardens are those which provide a sequence of bloom. Starting with the tropical flowering shrubs and creepers, Bougainvillea, Poinsettia, Allamanda, Acalypha, Crossandra, Eranthemum, Ixora, Antigonon, Bignonia, Congea, Beaumontia, Azalea, Hibiscus, Clerodendron, Datura, Angelonia, Plumbago, Oleander, etc., together with annuals and bulbous plants freely intermixed, will provide a succession of bloom in the garden throughout the year.

An important feature to be considered in the arrangement of flowers in the formal garden is that of balance. The height of the foliage and bloom on one side of the garden should have a corresponding unit on the other, not necessarily the same plant, but there should be some degree of similarity in outline and colour. The question of mass effect should be also given more consideration. Definite groupings of tropical flowering shrubs would improve the garden. For instance, when space allows, groupings of the brilliant coloured Bougainvillea Ruby, and the delicate coloured varieties of Lagerstroemia (June Rose) and the yellow Allamanda should be arranged to provide very striking displays of bloom in the garden landscape.

Climbing Plants.

In the decoration of the flower garden and in other parts of the grounds, the value of the plants which are of a climbing or trailing habit is undeniable. Without their aid the average garden looks tame and unsatisfying: thus their judicious use cannot be too strongly advocated. It is unnecessary to dilate upon their beauty and the purposes to which they may be applied—to cover bare walls, to clamber up poles or over rough trees, to ramble over a trellis or arch, are only some among the many uses to which they may be put, and their proper planting and cultivation deserve greater consideration than has hitherto been given in many places.

Preparing the Soil.

The preparation of the soil for climbing plants is of the highest importance. It is self-evident that subjects which make so much top-growth call for good nourishment in the ground, and this should be provided by careful preparation. It is well-nigh impossible to err in

this direction. The soil should be well prepared by trenching and the addition of plenty of well-rotted stable manure. The holes made for the reception of the plants should be at least 3 feet in circumference and 3 feet deep, and no efforts should be spared to secure a good soil as a medium for the plants. This may consist of good fertile top soil taken from some other part of the garden. The soil should be allowed to settle down a week or so before planting. It almost every case the situation should be a sunny one although some climbers will thrive in shaded positions, e.g., Solanum Wendlandii, Tecoma capensis, Clerodendron Thomsonae, Clerodendron speciosum. Clitoria ternatea and Hoya carnosa.

When planting, see that the plants are carefully taken out of the pots. If these are filled with roots, those on the outside of the ball of earth should be carefully loosened before placing the plant in position.

Pruning and Training.

Little pruning is necessary in the first year or so. Notice should be taken as to whether the plant flowers more freely on the old or ripened growth, or on the new growths. In the former case, pruning should be confined to taking away superfluous shoots and remaining decayed or weak wood. In the latter case, the last year's growths should be cut away and the production of new growth encouraged. While unnatural stiffness should be avoided in the training of climbing plants it is essential to see that the plants are properly trained that they may show their beauties to the best advantage, and are neatly fastened to support when they are called into use. Unless this is done in good time, the effect will be greatly reduced and an air of untidiness and want of care will be apparent. I would suggest the following climbing plants as suitable subjects for covering pergolas, fences, trees and rustic arches:—Allamanda Hendersonii, Antigonon leptopus (Pink Coralilla) Beaumontia Grandiflora, Bigononia magnifica, Bignonia venusta, Clerodendron speciosum, Congea tomentosa, Porana paniculata (Christmas Blossom), Quisqualis indica (Rice and Peas), Solanum Wendlandii, Thunbergia grandiflora and Tecoma capensis.

Decorative Boundaries.

There is no reason why any proposed hedge should not be made a beautiful garden feature. An effective hedge of coloured foliage may be formed with Crotons, Acalypha and the golden leaf Aralia, whilst a hedge formed of flowering shrubs of varieties of Hibiscus, Poinsettia and Bougainvillea makes an attractive floral boundary. Other floral subjects with a semi-climbing habit, and also suitable for covering boundary fences are Allamanda Hendersonii, Tecoma capensis, Bignonia venusta and Congea tomentosa.

Preparing for Planting.

It is always a good practice to give a hedge a good foundation, i.e., a trench dug deeply and filled with decayed manure and good soil, otherwise unevenness of growth is likely to occur.

Training Hedges.

In clipping or trimming hedges it should always be remembered to keep them narrower at the top than at the bottom, and when a hedge becomes bare at the base—sometimes caused through an extended period of drought—it is advisable to cut the hedge hard back to one foot from the ground. This ensures a sound basal growth to develop and form a thick hedge again. It must be remembered, however, that when such subjects as Poinsettia and Lagerstroemia (June Rose) are used for boundary hedges, they should be cut back annually, the

Poinsettia in March and the Lagerstroemia in January, to ensure a renewal of flowering growth for the next flowering season. Hedges of large or broad-leaved plants should not be clipped but trimmed with a knife or secateurs.

ANNUALS.

There is no real difficulty in the way of growing annuals which are familiar to us in Jamaica, yet there are a few cultural features to be followed which are essential to success. As a general rule, annuals require a sunny position in the garden. The soil should be well dug and a moderate amount of decayed manure worked into the soil. Rake the soil smooth before sowing and in all cases sow thinly. Seeds of Zinnias, Balsam, Cosmos and Nasturtium may be sown direct in the beds while the smaller seed annuals such as Petunias, Phlox Drummondii and Asters should be sown thinly in boxes, using a soil compost of a fine texture, with a little stable manure and sand, all well mixed together. Drain the boxes with some coarse rubble and put in the soil to within half an inch of the top, give a good watering and allow the soil to settle before sowing the seed. If the seed is very small, mix it with some fine soil and distribute the whole over the surface of the seed-box. Stand the boxes under a light shelter so that there will be no fear of a heavy downpour of rain washing away the seed. When the seedlings appear, give them more light preferably the morning sun up till 10 a.m. As soon as the seedlings are large enough to handle they should be transplanted into a bed previously prepared with a fine mixture of soil. Water carefully; excess is harmful and often leads to damping off of the young seedlings. The transplanting of the seedlings should be done in the cool of the afternoon, and should the weather be hot and dry, some light protection from the mid-day sun should be afforded to protect the young plants until they have made new roots. No time should be lost in obtaining seeds and sowing them, if good results are to be gained, during the cooler months before us.

Planting for Effect.

The modern plan of laying out small beds for groups of different varieties of annuals is most effective in the formal lay-out of a garden, and where the garden admits of it, a portion of ground near the dwelling house, sheltered from strong breezes, may be well devoted to this purpose at this time of the year.

THE FERNERY.

Some thought and attention must be given to the situation of the fernery by those who would grow these subjects successfully. They dislike too much or too intense sunshine, and though the house may be shaded, it will save labour in this respect if the structure faces east or north. The owner may construct the house upon such a site facing south, providing it is situated under the shade of a guango or some other shade-giving tree.

Potting Ferns.

Potting mixtures for ferns should consist mainly of good soil and peat mould to which should be added a small proportion of old mortar containing lime and a similar quantity of fine sand. Broken pieces of brick mixed with the soil are also a useful ingredient and has the effect of maintaining proper aeration of the latter. A small portion of old manure may be added to the compost, but must be in a thoroughly

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decomposed state. Thorough drainage being essential, the pots should be filled to about one-fifth of their depth with crocks. Many of the more delicate ferns such as Adiantum Farlyens and Nephrolepis (Baby's Breath) resent much water being applied to the foliage, therefore in watering, the fronds should not be unnecessarily wetted. The time for re-potting the delicate varieties of Maidenhair ferns is when they begin making fresh growth, usually in March and April. The old ball of soil may be considerably reduced to enable the plants to be put in the same size of pot or a slightly larger one according to the vigour of the plant. Young plants making rapid growth may be re-potted into larger size pots several times a year without reducing the ball. Press the soil fairly firmly about the roots of old plants but considerably less about quickly growing young plants.

Watering Ferns.

Newly potted ferns should be watered carefully to settle the soil and no more water given till actually required. As the plants begin to grow freely they will require to be watered mor frequently, till when in full growth, during the heat of the day they may require watering twice a day, though it should not be given unless they are actually dry. There should be no stagnant water about the roots so that provision should be made for clean drainage at the time of potting. If the air is kept moist in the fernery by damping down the paths and open spaces, there will be no necessity to syringe the delicate leaves of the Maidenhair ferns.

Roses.

The success of the Rose in Jamaica is very largely a question of selection of adaptable varieties. These varieties are mostly the compounds of various types and species. The usual horticultural roses are of little merit in landscape gardening in the tropics because they do not supply sufficient foliage and flowers, and this fact has no doubt placed the Rose in a less prominent position in the tropical garden as compared with the location of the Rose garden in the gardens abroad.

Location and Soil.

Choose a site with full exposure to the sun; the shade from trees and houses being detrimental to the plants. Protection from the mid-day wind may be afforded by planting a hedge of Aralia around the rose-beds. The ideal soil is a rich deep loam but a good rose-bed can be made in clay at a little expense and labour. Perfect drainage at the roots is essential, and terraced beds, especially in wet districts, are generally found to give the best results. In dry districts the beds should be at least 3 inches below the surrounding surface in order that all the rainfall may be retained.

Plants and Planting.

Roses may be secured from the dealers grown in two ways: on their own roots or budded on a stock. There is much difference of opinion among growers as to the relative value of the two methods of propagation and it must be admitted that some of the stronger varieties will do equally well either way; but the opinion of the writer, based on his experience, is that all of the less vigorous varieties are far better budded than on their own roots. From the writer's experience, the only objection to budded plants is the danger of suckering from the roots; therefore no one should attempt to cultivate budded roses who cannot distingush the brier should it appear, or who is too careless to dig down at once and cut the wild shoot clean off at the root. A very little experience will enable anyone to distinguish the brier. The growth is covered with minute thorns and bears seven leaflets instead of the usual five. Young

plants should be chosen for planting out and any flower buds that may appear early should be removed, as the plant should not be allowed to flower until at least 3 months old. As a general rule, the class of roses grown in the lowlands do not need pruning except for the removal of worn out or dead wood. Cuttings of well ripened shoots may be planted at any time under our prevailing conditions. They strike best in a light sandy soil. The beds for the roses may be of any desired shape but a width of 4 feet will usually be the most satisfactory as a double row can be planted at intervals of 2½ feet, which will be all that is necessary for the strongest growing varieties, and the blooms can be gathered from each side without the necessity of trampling on the soil. During periods of drought, a mulching of stable manure should cover the surface of the bed so as to check evaporation of moisture from the soil.

GROWING PLANTS IN POTS.

The cultivation of various kinds of plants in pots is desirable from an artistic standpoint and also from the fact that certain subjects respond more kindly to that method of culture than to any other. The practice of growing plants in pots is especially valuable where the garden is small and limited to courtyards and such-like enclosures. The successful growth of plants in pots will, of course, depend very largely on aspect and situation. Many beautiful foliage plants which become stunted or scorched by the sun will, if placed in a shady position, develop luxuriant growth. All plants growing on the verandah should be turned round frequently in their position so as to equalise the effect of light, otherwise their growth will be one-sided.

Potting Plants.

The essential requirements for potting plants are clean earthenware pots, suitable soil and broken pieces of pots or stones. Commencing with the drainage of the pot, a piece of broken crock is placed over the hole in the botto and over this are placed more crocks finishing with smaller ones, drainage being then about an inch deep. Over this should be laid soil coarse soil to prevent the fine soil clogging the drainage. A layer of ting compost being then filled in, the plant is placed in the centre, soil being fitted in around it and pressed firmly. A space of half an h from the rim should be left for the purpose of holding water when plants are watered. After the plants are potted, a copious watering is ven, and the plants should then be kept for a few days under heavy ile. Plants always look best in pots which are in proportion to their e and also thrive better in them. The ideal soil for potting most plants onsists of good top surface soil and well decayed manure, in place of mould which is often difficult to find in the tropics. A peaty soil is nsidered specially suitable for ferns, though these may also thrive in ny soil.

Watering of Pot Plants.

Watering is one of the most import operations connected with the cultivation of plants in pots, for a (cient or excessive supply of water is a frequent cause of languid gr h or death of such plants. To know just the proper amount of water eficial to the plant requires judgment and can only be learned by ob ation of the requiremnts of each plant. In watering pot plants, ecially puny or delicate kinds, a watering-can should always be H. One of the first and most important lessons to teach a garden is that it is the roots and not the leaves and flowers that require w r, and that more than a mere wetting of the surface is necessary naintain plants in health.

and vigour. All watering should be done early in the morning and, if necessary, again in the late afternoon. Watering with a weak solution of liquid manure is of great benefit to pot plants, but it should not be applied until they have their root system well established after potting. To test whether a pot plant is dry at the roots, give the pot a sharp tap with the knuckle. If it gives a sound like that of an empty pot, the plant is in need of water. If a plant has become very dry at the roots, it should be left for a time in a bucket of water to become thoroughly soaked. No water should be allowed to remain in the saucer in which the pots are standing, for this will cause a stagnant condition and form a breeding-ground for mosquitoes.

THE NURSERY.

A necessary part of the equipment of a garden is a nursery for the propagation of plants. The essential points of a good nursery are shelter from wind, a plentiful supply of water, light and shade to suit the various plant subjects, and fine loose, well-drained soil. The ground should be kept clear of weeds and rough stones. The soil should be deeply dug and formed into beds of uniform size, but for facility of working they should not be broader than 3½ to 4 feet, and a pathway of about 18 inches must be left between. The nursery should be enclosed with an Aralia hedge; or the use of an ornamental flowering shrub, trained into a hedge, may be preferable.

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THE CONTROL OF SLUGS AND SNAILS IN GARDENS AND ORCHARDS.

By Mr. W. H. Edwards, D.I.C., F.E.S., Government Entomologist and Acting Microbiologist.

Slugs and snails breed in damp sheltered places where decaying vegetable matter is available. The abundance of these pests in certain fields is frequently due to the thick layers of rotted leaves used as mulch. As mulching is practised on a large scale where plantations are not irrigated, the pest is generallly found more abundant there and also in fields where walls have been built with loosely stacked stones as the pest finds ideal shelter in the crevices.

Measures of Control.

I. *Trapping*—

A cheap and effective method of capturing and destroying these molluscs in numbers, consists in laying suitable traps over the fields. By placing bits of board or several handfuls of plant refuse in heaps over the ground, the slugs seek refuge under these during the day and can be collected '*en masse*' by visiting the traps at regular intervals.

While in fields where clean cultivation is practised, it is easy to keep slugs and snails under control by trapping, the method is bound to give but poor results where the pests find abundance of food amongst thick layers of mulch surrounding the plants, and shelter amongst the stacked stones under which they remain concealed instead of congregating under the traps.

When trapping has to be practised under such adverse conditions it will be found that large pieces of banana stems being more attractive, give better results as traps than pieces of boards.

To prepare traps with banana tissue the pseudo stem should be cut in pieces from 2 to 2½ feet long; those should then be divided lengthwise into two halves and laid over the ground with the flat surface downwards. These traps can be rendered still more attractive by smearing the cut surface with molasses or by sprinkling bran over the cut tissues.

N.B.—Necessity for clean cultivations and of applying measures of control over fairly large areas.

In cases of heavy infestations it is advisable to practice clean cultivation for a time and to leave no plant refuse on the ground until the pest has been eradicated.

If measures of control are applied simultaneously over fairly large areas, economic control by trapping alone is not so difficult to achieve as people are inclined to think. As in the case of small holdings it is difficult to have control applied simultaneously over the whole of the infested localities and the problem under such conditions becomes unfortunately, much more difficult.

II. *Applications of Poisons*—

When only small areas have to be treated, infested mulch can be poisoned by dusting insecticides, such as Paris Green, and Lead Arsenate, over the vegetation and mixing the poison in all refuse on which the pest feeds.

III. *Mechanical Barriers*—

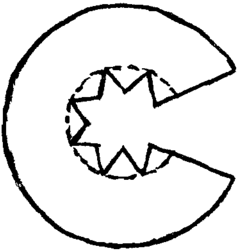
(a) On the ground around the plants:

Liberal applications of powdered hydrated lime or of wood ashes on the ground around the plants and over the plants themselves keep off those molluscs so long as rain does not wet the powder. Dry Bordeaux Mixture finely dusted over the plants also acts as a repellant.

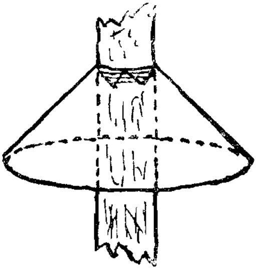
Newly planted seedlings can be protected by sprinkling on the soil around them, hydrated lime, in a ring 2 to 2½ inches wide and one foot to eighteen inches in diameter. In rainy localities fine sand mixed with lime and applied in a thick layer will have to be substituted for pure lime which is more easily washed away.

(b) Placed around the trunk of the trees:

To prevent slugs and snails climbing to the foliage and fruits of trees, pieces of tin, cut as shown in the annexed figure and tied around the trunk of trees so as to form a sort of inverted funnel, are very effective especially when repellant grease is smeared over the under surface or over a strip of grease-proof paper tied around the part of the trunk sheltered by the slanting edges of the cone.



Piece of zinc or tin sheet cut in shape to form a sort of inverted funnel when tied around the trunk of trees.



Inverted funnel around the trunk.

The repellent grease is smeared underneath.

A mixture prepared by dissolving rosin in linseed and castor oil is effective and economical for grease banding trees.

Preparation of Grease Banding Material.

The mixture is prepared by dissolving powdered rosin in boiling raw linseed oil until a thick paste is obtained. As the hot paste so obtained would harden too much on cooling, castor oil is then slowly added and mixed, until the cool mixture has the consistency of tallow.

* * * *

Learning the how of better farming is important economically, but learning the why is what adds interest and zest and removes drudgery. *A. B. Bryan, in Southern Cultivator, June 1, 1934.*

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EDITORIAL COMMENTS.

Reviewing this Year, Next Year and Our Chistmas Wishes.

For the past two years the outlook at Christmas time has been very gloomy. We are happy, however, in feeling that we need not be quite so gloomy this Christmastide in looking forward to the prospects of the coming New Year. We have been without a hurricane during the year and 1934 brought us excellent weather conditions as against one of the most destructive droughts hitherto experienced in 1933.

Our banana crop this year has been much larger than even the most sanguine of us had expected. Our sugar crop was a record for recent decades. We think that most of the farmers have had little or no money to spare this year as all was required for maintainance of their properties or for paying off liabilities which had been mounting up due to a succession of bad years.

We also find from the Collector General's figures for importations for the three quarters ending 30th September, 1934 that our purchasing power has at last evidently taken a turn in the right direction and that whilst the increase is not of great volume nevertheless the trend must impress one as being in a favourable direction. Articles such as apparel, motor cars, motor trucks, automobile parts and tyres, manufactured goods, have all been imported in larger quantity than for a corresponding period the previous year. Foodstuffs and liquors have also taken an upward trend but we think it unfortunate that there should have been an increase in saltfish and pickled mackerel. We notice a distinct decrease, however, in wheat flour, cornmeal, corn and rice and we think that a displacement by our local foodstuffs is the cause, which is all to our advantage. Condensed milk continues its increase, and building material remains about stationary. This last fact shows that at least our home making activities have been maintained.

On the export side our values for the nine months being reviewed are over £300,000 to the good. This is accounted for nearly entirely by the increased banana exportation. We have some notable decreases in some of our crops, for which we are sorry. The export of coffee, for instance, is somewhere about 30% less than it was the previous year and there are also decreases in limejuice, logwood and logwood extracts, goat skins and cigars. As against these we have increases in citrus, ginger, cattle hides, and slight increases in honey, pimento, rum and sugar. One increase which is worthy of more than passing mention is that of ginger, the volume of which has gone up about 50% while the money value has increased over 100%.

It would be worth while to bear in mind, while on the subject of ginger, that our ginger has hitherto had the finest name of all types of ginger imported into England but that we are now learning of complaints on the condition in which it arrives there and that there are other countries, especially Nigeria, that are making serious bids for our markets, It is stated that they are now putting these markets a ginger not of of as good quality as ours but much better processed. We propose making a special drive in the improvement of ginger processing this year and hope for the co-operation of those concerned.

We are very glad to be able to close this article with the same hopeful ... with which it was opened and feel sure that with the respite from ...itous weather conditions that we have recently been subjected

to, coupled with intelligent hard work on the part of the agriculturists we might look forward with quite some confidence to next year.

Let us therefore not look back, but for experience, rather look forward with determination to improve our agricultural practices, endeavouring to achieve cheaper, bigger and better production and so travel the safe road to prosperity.

The Jamaica Agricultural Society has the interests of our agriculturist always at heart and pledging every effort for their welfare wishes them a happy Christmas and a progressive and prosperous New Year.

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EXTRACT FROM CURRENT LITERATURE.

From Daily Gleaner of November 20th 1934.

Extract from letter from Mr. Alfred S. Nichols, President of Jamaica Public Service Co., to the Jamaica Imperial Association, with reference to Irrigation on the Liguanea.

"Development of the lands not yet brought under cultivation is proceeding slowly. More accommodating banking credit facilities are needed for the small planter. If it were possible for the small planter to borrow the necessary money for working expenses through a lien upon his anticipated crop, as is done in many countries, the problem of development of the lands of the small planter would be simpler. Because of the lack of working capital, the Jamaica Public Service Company has been compelled in several instance to participate indirectly in financing of this character through carrying relatively large sums in unpaid power bills. Discontinuance of the electricity supply service on these irrigated lands would perhaps destroy the cultivation; cessation of the water supply would be serious indeed, therefore, the Company does not exercise this prerogative.

Mr. Nichols concludes his communication with the following remark: "The development of these lands, so adjacent to Kingston is to be desired, and I am glad to say that much has already been done."

Editor's Note:—Mr. Nichols has certainly touched a sore spot. The lack of credit facilities is the greatest existing hindrance to the *agricultural development of the Colony.*

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DAIRY CATTLE BREEDING IN JAMAICA.

By T. P. Lecky.

(A Eourth-year Thesis for Course in Animal Husbandry at the Ontario Agricultural College, 1934).
(Continued)

Breeds of Cattle Used in Jamaica for Dairying.

Scientific breeding of Dairy Cattle in Jamaica has been very recent compared with Northern Countries. The Cattle, earlier than 1910, were a mixture of Spanish, Central American, Barbadian, Porto Rican and British origin and were more or less mongrels. These cattle had the advantage of being hardy. They had long horns, large heads and long legs with a variation of hair colour. They met a setback when tick-fever was accidentally introduced by the importation of cheap cattle from Central America for slaughtering—about 30 years ago. These native cattle became unthrifty and the offspring from imported bulls suffered severely. To overcome this difficulty Zebu cattle were introduced.

In 1910 the Government of Jamaica established a cattle farm at Hope. The idea of the Director of Agriculture was to find a breed that would make dairying a profitable concern and to solve the difficulties of a commercial herd. Limited by finance he had to commercialize the herd and certain experiments had to be laid over, such as the establishing of a new breed that had begun, until the herd could absorb the expense of such projects. It was found necessary to introduce several breeds, namely, Jersey, Shorthorn, Guernsey, Holstein, Ayrshire, Red Poll, Brown Swiss and the Zebu breeds (Nellores, Mysores, Hissars and Montgomery.)

Results of Breeds Tested.

Shorthorns:

In 1906 a Shorthorn Bull was presented to Jamaica by Sir Alfred Jones from England. This Bull was used at Hope on native cattle. None of his daughters were suited for our purpose and only through one daughter is his blood traceable in the present herd. They were too delicate, hairy and white skinned for profitable dairying and therefore the breed was discontinued.

Ayrshires:

This breed was tried in Jamaica both by the Government and individual breeders. In India the Government Farm at Pusa reported good results with the Aryshire-Sanhiwal (Montgomery) cross and so it was decided to try out this cross; and therefore in 1920 the Farm imported from Scotland one Aryshire Bull and three cows. One of the cows died without leaving any progeny. A few useful graded cows were produced but the purebreds were failures. Twelve bulls recorded were used in Jamaica.

Fourteen graded Ayrshires were tested and the leading one gave 7,960 lbs. as an average for two lactations compared with her dam 8,436 lbs. She was out of a half-breed Montgomery Cow. Four of these graded cattle were found to be up to the herd's average.

Owing to the long hair, and white skin, they were found unsuited to our climate and the grades did not prove any better than other breeds tested, therefore the experiment was discontinued in 1929.

Brown Swiss:

The experiment with Brown Swiss started in 1920 when six cows and a bull were imported from U.S.A. Thirteen purebreds were tested and only one proved satisfactory. Her yield was 6,849 lbs. of milk, an average for two lactations, and was one of the first generation in Jamaica. The results of the graded heifers were much better. Of the ten graded heifers tested five were useful cows with an average of 5,361 lbs. The highest yielder gave 6,124 lbs. of milk as an average for four lactations. The purebreds are not suited but with some Zebu blood were quite useful cows. This experiment was discontinued as the breeds did not show that it would supersede other established breeds tested.

Guernseys:

This breed was introduced into Jamaica earlier than 1910, and have had an up and down career. They are now becoming popular. The breeding of Guernseys began on the Hope Farm, with a few graded cows imported from Canada in 1910 and 1911. These were sufficiently successful so that in 1913 a bull from the United States was imported. He produced six heifers and two bull calves before he died from tick-fever seven months after landing. Five of his daughters qualified for the herd; the best one gave 4,216 lbs. as an average.

In 1917 "Lilly's Plato" a bull with good production and show type was imported. He produced 27 cow calves; 13 were tested.

Comparison of Daughters to their Dams.

	Daughters.	Dams.
Average Lactation ..	5,301	4,273
Average Butter-fat ..	192.2	190.6
Average Test	4.4	5.2

Milked 11, Culled 7; Foster mothers 2; died 7—27

Average for the best daughter was 5,618 lbs. of milk.

In 1921 "Elfordleigh Prince" was imported from England. He produced 8 cow calves. He died five months after landing in Jamaica from tick-fever. One of his sons was used in the herd.

Comparison of his daughters with their dams.

	Daughters.	Dams.
Average Lactation	5,240	3,958
Average butter-fat ..	225.8	197.1
Average test	4.7	4.6

Milked 5; died 1; failures 2.

Bull No. 4 Colza's Prince:—He was the son of the above Bull out of an American bred Guernsey Cow. He produced 16 Bull Calves and 11 heifers.

Comparison of his Daughters with their Dams.

	Daughters.	Dams.
Average lactation	5,456	3,962
Average Butter-fat ..	257.2	175.8
Average Test ..	4.7	4.4

Milked 8; died 3

Bull No. 5 "*Gladiator*" was imported from U.S.A. He gave one bull calf before he died from tick-fever.

Bull No. 6 "*Foremost Monogram*" was imported in 1929, and is at present the herd sire. His daughters have just started to come in milk, therefore no result of his offspring.

The farm has had very bad luck with the importation of Guernsey Bulls.

Summary of the three bulls whose daughters have been milked since 1920 are as follows:

	Daughters.	Dams.
Average lactation ..	5,342	4,067
Average Butter-fat ..	220.5	184.3
Average Test	5.5	4.8
Extremes	7150-2103	5831-3260
"	344-77	245-140
" ..	5.5-3.7	5.0-4.0

Milked 54%.

No. of Cows.

lbs. Milk.			lbs. Butter-Fat.		
Above	7000 lbs.	1	Above	300 lbs.	5
"	6000 "	5	"	250	2
"	5500 "	3	"	250	5
"	5000 "	2	"	150	7
"	4500 "	5	"	100	3
Under	4500 "	8	Under	100	1
	Total	24			24

In 1920 two purebred cows were imported from U.S.A. Seven purebred cows were tested, since then, but none has reached much over the herd's average although they were kept all the time in the purebred herd where they were better fed and cared for than the graded herd.

Holstein-Friesians:

Holsteins were used in Jamaica before 1910, but never seemed to have had a foot-hold though several people have tried, and we do not hear much about them after a few years. Lately a breeder has started a purebred herd. These are the only purebred cows in the registration book in Jamaica. Those that the writer has seen, did not look very encouraging as purebreds, but seem to be suffering from lack of ability to do well in Jamaica. The following bulls were tested in Jamaica on the Government Stock Farm:

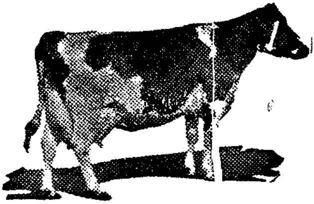
Bull No. 1.—"King Pontiac Monroe Pohlcrest, 185351," was the first bull used on the Government Farm of this breed. He was imported from U.S.A. and was by the famous bull "King of the Pontiac." He was used for two years before he died of tick-fever. He sired 62 calves, 53 bulls and 29 cow calves.

Results are as follows:

Average	lactation of tested daughters			6206 lbs.
"	Butter-fat	"	"	221 "
"	Test	"	"	3.7%

Milked 10; culled 9; foster-mothers 8; died 1; sold 1.

His leading daughter is believed to be the highest producer in the West Indies. She gave 18,030 lbs. milk in 479 days in her second lactation.



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Bull No. 2.—"Far Oaks Sir Pauline Homstead 245115," was imported from U.S.A. in 1920 and was a son of one of the leading bulls in the States. He was used mainly on graded Holstein Cows and therefore he had a better chance than "King".

Results are as follows:—

Average	lactation of tested daughters			6286 lbs.
"	butter-fat	"	"	247 "
"	test	"	"	4.1

Milked 9; culled 9; foster-mothers 5; died 1;—24 daughters.

The high per cent. of culls made is very discouraging to continue the breed, only 37.5% of his daughters were useful cows.

Bull No. 3.—"North Star Fayne Romeo 484144"—"Fayne" was the highest priced bull the farm used. He died thirty days after landing from pnumonia as a result of tick-fever. He produced two cow calves of which only one was satisfactory, the other has not bred up to September, 1933, though she was born in 1929.

Bull No. 4.—"Sir Francy Romeo Posch 70686." He was the first Canadian Holstein bull to be used on the farm. He arrived in 1930. His daughters have not been tested as yet and he is still alive, (September, 1933).

The following is a summary of the results obtained for bulls tested:

Average lactation	.. ..	6245 lbs.
" butter-fat	..	233.5 "
" test	.. ..	3.9%

No. of daughters of Holstein bulls used:

Above	9000 lbs. milk		2	Above	450 lbs. fat		1
"	8000	"	1	"	400	"	
"	7000	"	3	"	350	"	2
"	6000	"	3	"	300	"	
"	5000	"	3	"	250	"	5
"	4000	"	3	"	200	"	4
Under	4000	"	4	Under	200	"	7
			19				19

Milked 19; culled 18; foster-mothers 13; sale; 1 died 2; 53.

The results was obtained since 1920, which starts the period from which comparisons are made, as before that time environmental factors were playing a greater part. Of the 53 cows produced only 36% qualified for the commercial herd.

Jerseys:

Jerseys were one of the earliest of the British breeds to enter Jamaica. Their blood came from two sources, firstly by the introduction of Barbadian cows and secondly by the importation of purebreds. This breed is the most popular of the dairy breeds in Jamaica and cows with a certain amount of Jersey blood out-number all others in the dairy section. This experiment started in 1911, with the importation of two hiefers in calf from U.S.A. Later in the year ten others were imported. Of the twelve heifers one died by accident,—one from tick-fever and one was barren. In the same year one bull, one cow and three heifers were imported from England. The cow died from Puerperal fever and one of the heifers succumbed to tick-fever. In 1920, three cows of the St. Lambert family were imported to Jamaica from U.S.A.—one died after being in the Island only one year, another gave only one calf and the third became the outstanding foundation cow used on the farm. Meridale Perfection (third mentioned cow) produced twelve calves of which two were freemartins.

Her ten calves are as follows:

Bulls—Hope Pogis—used at Hope and Grove Place.
Hope Pogis 10th—sold as a stud bull.
Last Link—exported to British Honduras.
Hope Victor—the present herd sire.
Glen's Perfect—Stud Bull at Grove Place.

Cows—Hope Perfection—sold at auction in 1928.
Perfect—average for 6 lactation 5166 lbs. 258.3 lbs. fat.
Perfume—Average for 5 lactation 6317 lbs. 315.9 lbs. fat.
Peri Lusta—Average for 4 lactation 5065 lbs. 278.6 lbs. fat.

The American type of Jerseys with more ruggedness was more suited to our conditions than the Island type. With a little Zebu Blood such good families as the Quails, Paste and Badge resulted from the Island type.

Results of imported cows:

15 were imported—6 died in the first year.

52 purebreds were tested up to 1933; 2 were unable to finish their first lactation on account of tuberculosis. 42 cows averaged 4,060 lbs. This included the period of very difficult times for imported cattle when the farm had just started and many went down with tick-fever or suffered from a sublethal infection.

The following bulls were tested:

Bull No. 1.—"Trojan" produced 10 daughters and 2 sons.

Bull No. 2—"Rotschild" imported from England 1911. Sired 10 daughters of which no descendant remains in the present herd. Six graded daughters were used.

Bull No. 3.—"Draconis"—Island bred bull and imported from England—produced 41 calves—26 bulls and 15 heifers. None of these hiefers were as good as their dams and they left no descendant in the present herd.

Bull No. 4.—"Sophies Oxford" was born in Jamaica but bred in Jersey—sired 3 purebred heifers, 1 bull and 3 graded daughters before he was sold in 1914. His off springs were inferior and left only one line of descendant in the present herd.

Bull No. 5.—"Sophies Jacoba Hector." As a result of the failures in the Island type of Jerseys it was decided to try a more rugged type as the American type cows were doing much better. So "Hector" was imported from U.S.A. He produced 69 progeny,—39 bulls and 30 heifers; 14 graded daughters were tested and 12 were used in the dairy herd. The purebred daughters were not as good as their dams.

Bull No. 6.—"Mr. Polo of Bleak House 26th" was imported in 1917 from U.S.A. He was not from a high producing cow and this bears out the point that with the environmental factors against production, a bull should be from high producing family. He himself should be able to trasmit good producing daughters before he will be successful under adverse conditions, and this may be the reason why Polo failed at Hope. He has been credited by his last owner to have improved his herd. He produced 9 purebred bulls and 5 purebred daughters—the daughters were below their dam's yield. He and Hector were cheap and resulted in very expensive bulls. Up to this time purebred Jerseys and high grades without Zebu blood could be rated as failures on the whole. Luckily at this time two Zebu-Jerseys were producing the leading cows in the herd which saved the breed.

Bull No. 7.—"Pogis 99th of Hood Farm 40th, 155, 511, A. J. C. C." With the introduction of this bull from U.S.A. in 1921 it marked a new era for the Jerseys. He came at a period when his daughters were able to get a chance. Probably this "Sophie Tormento" bull is the best bull ever imported to Jamaica of all breeds. He produced 143 calves,—58 cow calves. His leading daughter gave 7,630 lbs. milk, 422.3 lbs. fat in 305 days and calved within the fourteen months' limit on twice-a-day milking, thus she could be qualified as an R. O. P. cow,—several of his daughters could have qualified. His leading daughters are as follows:—

Purebreds:

Portia 7773 lbs. milk 310.9 lbs. fat as an average for 5 lactations.
Pogistine 6652 lbs. milk 332.6 lbs. fat as an average for 5 lactations.
Perfume 6317 lbs. milk 315.9 lbs fat as an average for 5 lactations.
Hoods Mead 5843 lbs. milk 310.9 lbs. fat as an average for 4 lactations.
Hoods Ethelstine 5764 lbs. milk 306.7 lbs. fat as an average for 5 lactations.
Sayda 5756 lbs. milk 287.8 lbs. fat as an average for 6 lactations.
Perfect 51566 lbs. milk 258.3 lbs. fat as an average for 6 lactations.

Graded:

Norbrook 4th 8717 lbs. milk 453.2 lbs. fat as an average for 4 lactations.
Norbrook 5th 6083 lbs. milk 396.7 lbs. fat as an average for 3 lactations.
Quail 8th 7377 lbs. milk 427.9 lbs. fat as an average for 2 lactations.
Tilda 7th 7942 lbs. milk 381.2 lbs. fat as an average for 1 lactation.
Matilda 12th 6369 lbs. milk 318.3 lbs. fat as an average of 3 lactations.
Mirage 3rd 6048 lbs. milk 326.6 lbs. fat as an average for 2 lactations.
Timorette 4th 6650 lbs. milk 352.5 lbs. fat as an average for 1 lactation.
Lizzie 3rd 5800 lbs. milk 307.4 lbs. fat as an average for 5 lactations.

Result of his daughter:

	Daughters.	Dams.
Average Lactation ..	5,500 lbs.	3,671 lbs.
" Butterfat ..	273.7 "	177 "
" Test	5.0%	4.6%

Qualified 44; culled 6; foster-mother 2; sale 5; T.B. 2—59..

	Purebreds.	Grades.
Average Lactation	5,732 lbs.	5,451 lbs.
" butterfat ..	284.5 "	276.1 lbs.

Average lactation of cows:—

Above	7000 lbs. milk		7	Above	400 lbs. fat		2
"	6000	"	7	"	350	"	6
"	5000	"	14	"	300	"	8
"	4000	"	13	"	250	"	12
Under	4000	"	3	"	200	"	9
				Under	200	"	6
Total No. of Cows			44	(Above 150)			43

The five sold and the two reacted to tuberculosis test, would have qualified if given a chance. 75% of his daughters were useful cows which is the highest for any bull used on the Government Farm with more than ten tested daughters.

Bull No. 8.—"Hope Pogis" Ja 73. With the success of his sire the Director of Agriculture at the time thought it wise to follow on with one of his sons and thus was used Hope Pogis. He was sired by Pogis and out of Meridale Perfection—an imported cow of the St. Lambert's family.

Line-breeding was started with this family. Hope-Pogis has produced 52 calves—21 bulls and 32 heifers (up to 1931). Seven of his purebred sons were distributed to the public; also seven purebred daughters of which most were inbred, and twenty-four grades. A true test of the result of Hope Pogis cannot be given as he is still in use on the Government Farm.

Result of some of his daughters:

Purebreds:

Angel 6430 lbs. milk 327.9 lbs. fat average for 2 lactations.
Jimmy's Ethelstine 4228 lbs milk 211.4 lbs. fat average 3 lactations.

Graded:

Baby 4th 6227 lbs. milk 252.8 lbs. fat average for 2 lactations.
Margis 4957 lbs. milk 252.8 lbs. fat with her first calf.
Quack 6098 lbs. milk with her first calf.

His daughters have shown promise of being useful cows.

Bull No. 10.—"Glen's Fountaine Lad"—was imported from U.S.A. in 1927. He is an Island type bull and the reason for using him was to introduce some quality into the co ırse Tormento cows. He is a show-Ring Bull with good production but a little animal and has produced 66 calves of which 33 are heifers. 14 Purebred sons were sold to the public as herd sires; 8 purebred daughters are in the herd and 23 grades. After three years on the Farm he was tranferred to the Government Stud Farm at Grove Place open for service to the Public; died in 1933.

Daughters of Glen in production up to September, 1933.

Purebreds:

Glens Ethelstine 4776 lbs. milk 272.2 lbs. fat 1st lactation.
Peralia 4162 lbs. milk 196.5 lbs. fat 1st lactation. (7 months)
Pergola 4456 lbs. milk 213.8 lbs. fat 1st lactation (7 montshs)
Glenstine 2557 lbs. milk 148.3 lbs. fat 1st lactation (8 months)
Raleighstine 1982 lbs. milk lbs fat 1st lactation (5 months)
Selina 7073 lbs. milk 417 lbs. fat 1st lactation (over 1 year)

Graded:

Balena 5034 lbs. milk 271.8 lbs. fat 1st lactation.
Glenlevit 4930 lbs. milk 216.9 lbs. fat 1st lactation.
Quantum 3210 lbs. milk 186.2 lbs. fat 1st lactation ($6\frac{2}{3}$ months).
Rouge 5768 lbs. milk 369.1 lbs. fat 1st lactation.
Sherry 4971 lbs. milk 213.7 lbs. fat 1st lactation.
Souvenir 3318 lbs. milk 165.9 lbs. fat 1st lactation (8 months)
Quaggle 2464 lbs. milk 203.5 lbs. fat 1st lactation (7 months)
Massie 380/ lbs. milk 213.2 lbs. fat 1st lactation (8 months).

The average calving weight of the purebreds was 728 lbs. and the grades 830 lbs. They are shorter legged than the Tormento cows. The daughters show some quality and are useful dairy cows.

Bull No. 11.—"Sophie 19ths Victor." In 1929 this bull was imported from U.S.A. to carry on the line breeding of the Pogis family. Unfortunately he is a very poor breeder. One of his sons Hope Victor is being used a great deal in his place. None of his daughters have yet been tested; died in 1934.

From this date given there are two periods of production amongst the Jerseys: one ending with Mr. Polo and the other commencing with Pogis 99th of Hood Farm 40th. In this period environment played its part with difference in degree of intensity. The farm's history may be divided into three periods:

1. Pre-war days. During this period ticks were plentiful and therefore the purebreds and high grade cattle suffered greatly. Feed was not expensive but the amount of money the Farm had at its disposal could not take care of this; on the other hand labour was cheap.

2. 1915-1920. Labour and feed were expensive and milk was high in price. The lack of facilities to take care of the drought period was great, therefore the effects of such time had a marked influence on production. The pasture had improved over the first period and the herd was about at its maximum number. Good bulls were very expensive.

3. 1920—This period has had improved pastures; the herd was beginning to pay its way; ticks came under control; and better facilities to carry the herd over the drought. The standard of the herd was improved and a greater knowledge of dairying under tropical conditions which resulted from past experience.

The only data that emphasis has been laid on fall in the third period as environment was playing a very large part and it was a matter of building up the herd. With regard to the different generation of cows in Jamaica no difference was noted that could not be explained by the difference in bulls used and the effects of feed and ticks. The outstanding cows of each generation of the pure bred Jerseys were sired by the same bull.

Example of this may be cited of Portia with an average of 7773 lbs. milk and Perfume 6317 lbs. which are both of the first generation; Sayda 5756 lbs. second generation; Hoods Mead 5843, third generation, while her dam of the second generation gave 2447 lbs.

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THE CULTIVATION OF CITRUS IN JAMAICA.

DEPARTMENT OF SCIENCE AND AGRICULTURE, JAMAICA.
BULLETIN No. 3. (NEW SERIES.)

The extension of the citrus industry in Jamaica is regarded as an important development in connection with the practice of agriculture, and work in connection with it forms one of the major activities of the Department of Science and Agriculture. Nurseries have been established for the production of standard varieties which are now being made available to bona fide planters at an exceptionally favourable price.

The Department, in association with the Jamaica Agricultural Society, is doing everything possible to encourage and assist the planting of citrus in districts where conditions are favourable, and it is hoped that these efforts, in conjunction with those of a large number of interested people in various parts of the Island, will bring about a great increase in production of citrus fruits within a few years, with consequent benefit both to those engaged in the industry and to the whole Island.

Considerable differences of opinion still exist in regard to the methods which should be employed during the various stages of propagation, planting and cultivation of citrus, and it was felt desirable that those officers charged with duties in connection with the Government Citrus Extension Programme should meet in conference with a view to full discussion of the various questions involved, so that uniform methods of propagation and culture in relation to local conditions could be agreed upon, and a statement issued for the information of those now engaged upon or proposing to take up the cultivation of citrus.

The members of the Conference were:—

The Director of Agriculture, Chairman.
Mr. M. S. Goodman, Superintendent of Public Gardens.
Mr. J. B. Sutherland, Officer-in-Charge Government Citrus Nurseries.
Mr. L. L. Carrington, Agricultural Officer.
Mr. Arthur Thelwell, Superintendent Grove Place Farm.
Mr. Glaister Baxter, Secretary, Jamaica Agricultural Society.
Mr. P. St. L. Bacquie, Supervisor of Instructors, Jamaica Agricultural Society.

Mr. Thelwell acted as Secretary to the Conference. Mr. P. W. Murray, Chief Inspector of Produce, was invited to attend but was unable to do so. The proceedings of the Conference were circulated to the members for their approval and, after necessary amendments, were incorporated in the following memorandum which sets out the main points which should be carefully followed by those who are devoting serious attention to the planting of citrus:

MEMORANDUM.

In this memorandum only the salient points of citrus culture are dealt with. There are certain essentials common to practice in all countries and it is assumed that those making use of the information now recorded will be familiar with them.

1. NURSERY PRACTICE.

(a) Root Stocks: Seville Orange should be generally used for root stock except in cases where plantations are to be established

at a high altitude—say 1,500 feet or over—when planters should consult an officer of the Department of Science and Agriculture prior to establishing nurseries or groves.

(b) Seed beds should be located under fairly high temporary or permanent shade in order to control Scab.

(c) Planting in Nursery: Transplanting from the seed beds should be done when the seedlings are 9 to 12 inches high. They should be carefully lifted, avoiding damage to the roots, and only those displaying healthy growth and having good root formation should be used. *Plants should be set out with a* minimum of 20 inches and a maximum of 24 inches between individual plants, with rows 3 feet apart. Tap roots should be cut back to 6 inches and topping may be resorted to if desired.

(d) Budding: When the thickness of the stock about 9 inches from the ground is ⅜ inch, the plant is ready for budding. Only buds of standard varieties, and from trees the history of which is known, should be used. The wood of the stock at the time of budding should be ripe, i.e., it should display greyish markings in the form of stripes. No plant should be budded lower than 8 inches from the ground, the general budding height being from 9 to 12 inches. Budding may be carried on during the whole year but the best results appear to be obtained in the spring.

(e) Treatment after budding: If the bud is still green, the wrapping should be loosened at the end of twenty-one days; buds not green at the end of that time should be cut out. After twenty eight days the stocks of sucessful buds should be cut half-way through on the bud side, six inches above the point of budding and bent over. When the bud has grown out and developed leaves, the stock should be severed at the same point, the six-inch stump being used as a support for the growing shoot from the bud. The plant should be trained to a stake in order order to secure erect growth.

(f) Bud Joints: A weak spot in nursery plants is the bud joint, and great care is essential to ensure its early healing. The joint should be carefully and cleanly cut back, leaving a smooth and slightly convex surface without a heel or any broken bark. Immediately cut is be completed and trimmed, it must be covered with a waterproof coating such as White Lead or a preparation of Coal Tar and Grease. The latter may be prepared by dissolving two tablespoonfuls of grease in a quart of hot tar. It should be applied when cool. When cutting and trimming the bud joint, great care must be taken to prevent injury to the portion of the tree above the joint by a slipping knife, or in any other manner.

(g) Training of plant in Nursery: It is desirable to turn out well-grown trained plants with the main laterals or scaffold branches developed. Nursery plants should therefore be kept free of laterals and then topped on fairly young wood at a height of not less than 30 inches, nor more than 36 inches, from the ground. The lowermost 20-24 inches should be kept free of all growth while well-placed laterals, to a maximum of five should be encouraged on the upper 10-12 inches.

2. Transplanting.

Plants should not be removed from the Nursery until the bud wound has completely healed and grown over. It is desirable to prune back plants four days before lifting, rather than at the time of removal from the Nursery, so as to avoid the double shock caused by cutting back and lifting at the same time. In nurseries under irrigation, water should be applied twenty-four hours before the plants are lifted, and in all circumstances the greatest care should be exercised when performing this operation to avoid all damage to the root system either mechancially or by exposure to the sun and wind. In some circumstances it is desirable partially to defoliate the plants by cutting leaves back to the petiole. Though this is the practice with some Nurserymen, it is not advocated for general adoption.

Method of Lifting.

(a) Nurseries on Clay Soils: With the help of proper digging and cutting implements, sever the tap root as cleanly as possible, at least 9 inches below the collar root, lifting a complete ball of earth with the plant. Immerse the root witb earth attached in a barrel or tub of water and wasb the roots free of earth. All damaged roots should be cleanly cut, and the tap root, if damaged, also cleanly cut. The roots should then be puddled in a mixture of clay and water and the plant placed in a cool spot, the roots being protected with moistened material.

(b) On Loose Limestone Soils: Proceed as above, but instead of lifting with earth, fork up feeder roots and lift the plant, shaking it free of earth. After trimming any broken and damaged roots, puddle the roots in mud, and place the plants in cool spot with roots well covered by moistened material.

3. Transporting.

No live material likely to set up fermentation should be used for wrapping plants. All wrapping should be done with dead material, e.g., dried grass. Plants should be laid down in lots of ten, with feeder roots carefully folded round, and all roots wrapped liberally in dead material, well moistened. They should then be tied and placed in bags, ten to each bag, so that the lower halves of tbe plants are encased in tbe bags. The bags are then securely tied in order to expedite handling.

4. Planting Out.

Preparation of land: The land for planting should be prepared at least six weeks before the plants are received from the Nursery so that the hillocks (constructed as described below) have time to settle, and the final preparation of re-hilling can be done before the plants arrive. It is imperative to reduce as far as possible the interval elapsing between lifting the plants from the Nursery and setting them out in their permanent locations. Whenever possible, plants should be lifted from the Nursery early in the morning and set out during the same day. It is recognised that in many instances this is impracticable so that it is essential to exercise the greatest care with plants that have been removed from the Nursery. They should be kept in their original wrappings exactly as despatched from the Nursery, placed in a cool spot away from possible damage, and watered. They should not be piled in heaps.

Transportation from the Nursery should be so carried on that plants reach their destination by the most direct route, with maximum speed and minimum handling consistent with avoidance of damage.

The number of plants that can be dealt with each day will depend upon the number of capable people who conduct the planting operation, but fifty plants a day may be regarded as the maximum that one trained planter and two assistants can handle efficiently. Better results will therefore be obtained by arranging for comparatively small supplies at intervals over a long period rather than by one supply of a large number of plants.

The planting distance recommended for grapefruit is 25 feet by 25 feet square or triangular, and for oranges 20 feet by 20 feet. The preparation of the land will vary according to the nature of the soil and other circumstances. On heavy clay soils no holes should be dug. An area 6 feet square around the spot at which the plant is to be put in should be forked, and a hillock of soil heaped up to a height of 3 feet and then left to settle. The height of the hillock should be about 2 feet above average ground level at the time of planting. The object of this practice is to prevent water-logging of the roots, which would occur if a hole were dug and subsequently filled with surface soil. Experience has shown that if that is done, the water collects in the hole and may kill the plant, while in any case it will retard its growth and lead to a sickly habit of the plant.

On limestone soils, holes 18 inches square by 18 inches deep should be dug, left exposed for a time, and then carefully filled in with surface soil. The surrounding ground should then be forked and the surface soil made into a mound about 3 feet high above the filled-in hole and left to settle. Just before setting out plants, the hillocks should be made up to a height of about 2 feet above the ground. No organic matter of any kind should be placed in the hole.

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Planting: (a) The tap root should not be allowed to butt and turn over.

(b) All lateral roots should be sorted out individually and placed in their natural order with the ends pointing downwards.
(c) All roots should be laid out in series as they occur up the main root.
(d) The height at which the plant stands in the hillock is vital. The plant should so stand that the point at which it stood in the Nursery is at, or slightly about, the level of the earth at the top of the hillock. It is safest to allow the collar roots at the point where they meet the stem to show slightly.
(e) Liberal watering should be done as planting proceeds and not *after* planting.
(f) In dry areas the hillocks should then be mulched.
(g) In exposed and windy situation, stakes should be driven to anchor the plants.
(h) Plants which have been held for some time prior to planting should be temporarily shaded.

5. AFTER-CARE.

(a) Pruning: Save for regular suppression of "Gormandizers," no pruning should be done for one year. After this, the advice of an Instructor should be sought.
(b) Spraying: Publications of the Department of Science and Agriculture should be read, and the advice of an Instructor sought on the question of spraying.
(c) Fertilising: The Committee recommends that a thorough study of the use of fertilizers for trees of various ages should be made by the Department of Science and Agriculture.
(d) General: No cultivation of the actual mound should be undertaken, i.e., neither forking nor moulding. No growth of weeds or grass should be allowed on the mound.

6. INTERCROPPING.

(a) The ideal method of keeping a grove is to use the interspaces for the cultivation of leguminous crops—green manure and cover crops—for the specific purpose of the general enrichment of the land, and this practice is recommended; but having regard to the fact that much of the cultivation of citrus will be undertaken under abnormal conditions, some intercropping will have to be tolerated. The planting of root crops, especially yam and sweet potato, should generally be discouraged, and preference should be given to crops with a low habit of growth.
(b) Only a strip which allows a clearance of 10 feet the first year, and 15 feet the second, on both sides of moulds should be cultivated. At the end of the second year the situation should be reviewed.
(c) Crops which are considered suitable are (in order of preference):
Peas, Peanuts
Pines and vegetables (cabbage, cucumber and peppers)
Tobacco
A single row of Bananas, running east to west.

7. The question of whether Nursery plants under irrigation were suitable for groves situated in dry uplands, and *vice versa*, was discussed, and it was decided in view of the lack of reliable data on the matter to test this out.

8. Types of Soils.

The following types of soil were considered suitable for citrus, in the order set out:—

(a) Red Limestone soils such as are to be found in Manchester and St. Ann.

(b) Alluvial soil such as is found on the Liguanea Plain.

(c) Hillside shale such as the Richmond Beds type and silty shale, and the common shale as found in the Port Royal Mountains.

(d) Light clays.

(e) Fairly heavy hillside clays.

Type (e) was considered *not* ideal, but it is felt that there is a chance of citrus surviving on such lands.

On clay lands, grapefruit, and not orange, should be planted as a general rule. It has been stated that in such lands oranges collapse on any root-stock, but this requires further observation before it can be definitely accepted. The facts, so far as they are known, should be brought to the notice of intending planters.

On all clay lands a proper system of drainage should be provided within three years of setting out the grove.

In the case of special soils, such as loam with yellow sub-soil, the advice of an Instructor should be sought.

A. C. Barnes,
Director of Agriculture.

September, 1934.

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MARKETING NOTES.

Extract from Weekly Fruit Intelligence Notes, 31st October, 1934.

This season's citrus fruit crop in Jamaica is officially estimated at 393,000 boxes of oranges and 119,000 boxes of grapefruit, as compared with a production of 492,000 boxes of oranges and 199,000 boxes of grapefruit in the 1933-34 season. Exports of fresh fruit are estimated at 130,000 boxes of oranges and 113,000 boxes of grapefruit, in comparison with 69,400 boxes of oranges and 188,600 boxes of grapefruit exported last season.

In the following table are shown the estimated exports of citrus fruit from Jamaica this season with the approximate quantities exported in recent seasons for comparison:—

Exports of Citrus Fruit from Jamaica.

Season (July to June).	Grapefruit.	Oranges.
	Boxes.	Boxes.
1928-29	115,000	65,000
1929-30	97,000	17,000
1930-31	78,000	25,000
1931-32	110,000	68,000
1932-33	153,000	110,000
1933-34	189,000	69,000
1934-35 (estimate)	113,000	130,000

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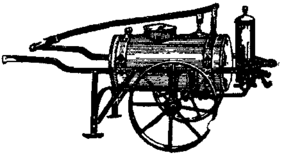

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Brief Specifications.—22 gallon container made of special brass alloy, weight 1½ cwt., pressure gauge and large compression cylinder, two large tread wheels, push and carrying handles, mechanical agitator, 10 feet of I. R. Tubing and Variable Spray Lance. The spray lance can be adjusted without stopping spraying to throw a spray to any distance from 2 feet to 30 feet from the nozzle. A second outlet is provided so that two lances can be used at the same time.

Prices from £18 17s. 6d. or Complete as described £20 12s. d.

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Extract from Weekly Dairy Produce Notes 2nd November, 1934.

The following statement gives prices of butter, cheese, bacon and hams, as issued by the London Provision Exchange to-day, together with those of last week. Prices quoted are those of Thursday and up to 11.30 a.m. Friday, for butter and cheese and to 1 p.m. for bacon and hams.

Butter.	This Week.	Last Week.
	Per cwt.	Per cwt.
New Zealand—Finest	71/- to 73/-	69/- to 71/- exceptionally 72/-
First Grade ..	70/- to 72/-	68/- 69/- exceptionally 70/-
Finest Unsalted ..	76/- 78/-	74- to 78/-

Extract from Weekly Dairy Produce Notes 2nd November, 1934.
Pork Prices (per 8 lb. Stone).

Description.	This Week.		Last Week	
English (Under 10 stone)	6/-	6/8	5/8	6/8
" (10 to 15 stone)	5/-	6/-	4/8	6/-
" (15 to 20 stone)	4/-	5/-	4/-	4/8
" (over 20 stone)		—	3/4	4/-
Irish (small)	5/8	6/8	5/8	6/4
" (medium)	5/-	6/-	4/8	5/8
" (heavy)	4/-	4/10		—
Australian	4/-	4/8	4/2	4/10
New Zealand	6/-	4/8	4/2	4/10
Argentine	4/8	4/4	3/8	4/4
U.S.A.	3/8	4/4	3/8	4/4

The following prices supplied by the Imported Meat Trade Association, Incorporated, are average prices for 1st quality during the week ended 1st November, on the basis of delivery to Smithfield Market and for ex-London Stores. Last week's prices are in parentheses. New Zealand Pigs 60/80 $6\frac{5}{8}$d. per lb. ($6\frac{3}{4}$d.); 81/100 $6\frac{1}{4}$d. per lb. ($6\frac{3}{8}$d.) 101/120 6d. (6d.); Australian Pigs 60/100 (av. 80) $6\frac{3}{8}$d. ($6\frac{1}{2}$d.); 101/120 6d. (6d.)

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BEE INDUSTRY NOTES.

(*Extract from Jamaica Gazette. November* 15, 1934.)

No. 877.—The Governor directs the publication of the following Order made by His Excellency in exercise of the powers conferred by Section 3 of Law 9 of 1918, "The Protection from Disease (Bees) Law, 1918,"for dealing with an outbreak of Foul Brood Disease of Bees.

THE PROTECTION FROM DISEASE (BEES) FOUL BROOD) ORDER, 1934.

Whereas Section 2 of the Protection from Disease (Bees) Law 1918 (Law 9 of 1918) provides that the disease known as Foul Brood shall be a disease for the purpose of that Law and whereas by Section 3 of the said Law (Law 9 of 1918) The Protection from Disease (Bees) Law 1918, it is enacted that it shall be lawful for the Governor from time to time by orders to be published in the Jamaica Gazette to:

(a) prescribe the measures to be taken for the treatment of any disease by the owner or person having the charge or management of any Apiary;

(b) regulate the duty of persons appointed to carry out the provisions of any orders issued under this Law;

(c) direct the destruction of any Apiary infected or suspected of being infected with disease;

(d) generally make provision for the purpose of preventing the introduction and spread of disease or of any particular disease named in the Order;

And whereas it has been reported to the Governor that Foul Brood Disease of Bees is now prevalent in this Island;

And whereas it is deemed expedient:

(a) to prescribe measures to be taken for the treatment of "The Foul Brood Disease" by owners or persons having the charge or management of Apiaries within this Islsand;

(b) to regulate the duty of persons appointed to carry out the provisions of this Order;

(c) to direct the destruction of such Apiaries infected or suspected of being infected with disease and

(d) generally to make provision for preventing the spread of "Foul Brood Disease."

Now therefore, I Sir Edward Brandis Denham, Knight Commander of the Most Distinguished Order of Saint Michael and Saint George, Knight Commander of the Most Excellent Order of the British Empire, Captain-General and Governor-in-Cheief in and over the Island of Jamaica and Its Dependencies, in exercise of the powers conferred by the Protection from Disease (Bees) Law, 1918, (Law 9 of 1918) and of all other powers in this behalf hereunto enabling do hereby order and direct and it is hereby ordered and directed as follows:—

1. Every person having the charge or management of any hive of bees or Apiary within the Island shall within seven days from the date of this Order report in writing to the Director of Agriculture, Kingston Post Office, the site and the number of hives which are in his possession.
2. No person having the charge or management of any hives of bees or Apiary within the parishes of Kingston and St. Andrew shall move or cause to be moved any bees, queen bees, hives of bees, honey, wax or any materials that have been used in connection with any hives of bees except by a permit in writing from the Director of Agriculture first had and obtained.

3. Where any hive of bees is found to be infected or suspected to be be infected with the Foul Brood Disease of Bees, the owner or person having the charge or management of such hives shall immediately notify the Director of Agriculture in writing and forthwith entirely destroy the same with fire. The stands or other fixtures on which such hives have been kept shall also be burnt with fire or tarred completely with boiling tar.
4. The owner or person in charge or control of an Apiary within the Island shall on the publication of this Order in the Jamaica Gazette forthwith examine the brood nest of each hive and shall destroy all hives where Foul Brood is present in accordance with this Order and shall thereafter examine each hive at least once in every three months and continue to destroy infected hives in the manner hereinbefore provided.
5. Any Inspector under the Law shall be empowered to destroy any colonies of bees and the hives or parts thereof which they *find on inspection to be infected with Foul Brood.*
6. This Order may be cited as "The Protection from Disease (Bees) (Foul Brood) Order, 1934."

Made by the Governor at King's House this fifteenth day of November, 1934.

EDWARD DENHAM,
Governor.

No. 878.—Under Section 4 of Law 9 of 1918, "The Protection from Disease (Bees) Law 1918," Mr. H. H. Coote, Bee Instructor of the Jamaica Agricultural Society, has been appointed to be a person to carry out the provisions of that Law.

Tablets

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(Yohimbinum Hydrochtorecum)

for Men

(German Specific)
10 Tablet of 0.005g.

A remedy against:
Sexual Insufficiency
Neurasthenia
Mental & Physical Depression
Nervous Headaches
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Loss of Manhood
and an Ideal Tonic for promoting energy and stimulating the Brain Cells
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FERTILISERS.

The Jamaica Agricultural Society stocks fertilisers for the convenience of small users.

We sell from 1 lb. to 1 ton.

ADVICE AS TO APPROPRIATE FERTILISERS WILLINGLY GIVEN ON APPLICATION.

Every farmer should institute some small trials to gather experience.

Fertility of Soils must be maintained if we are to exist.

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SEE US FIRST !

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GINGER **HONEY**

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KINGSTON.

TOBACCO.

(Extract from American Hortigraphs November-December, 1934.)
Quality of Tobacco affected by kind and quality of Fertilizers used.

Experiments at the South-western Experiment Farm at Germantown, Ohio, show that the quality of tobacco is influenced by the kind, quantity, and method of applying the fertilizer, according to Professor J. S. Cutler, associate agoronomist at Ohio Experiment Station. Through fertilization it has been possible to raise the quality of the crop at least a whole grade.

"In 1931, unfertilized tobacco graded fourth quality, and the adjacent fertilized plots averaged third quality; in 1932, the effect of fertilizers was even more apparent. The average grade was raised from one to one and a half grades. The tests with fertilizers of different ratios have not been conducted long enough to warrant drawing any very definite conclusions as to their effect on quality."

Professor Culter says the most consistent difference to date from the use of fertilizers has been reflected in increasing the average length of leaf. Where fertilizers has been applied in the row and the tobacco sized, a greater proportion of the leaves are in the longer-size groups.

Tobacco, more than almost any other plant, shows distinctive symptoms of deficiencies if the various nutritive elements necessary to a proper growth, and the resulting lowering of quality is more costly than for any other commercial crop, says *The Southern Tobacco Journal.* Many types of tobacco are grown on light sandy soil, naturally low in plant foods and frequently cropped for years to tobacco

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ROYAL BLEND
CIGARETTES
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without a regular rotation. The chlorotic condition due to certain plant deficiencies has thus been easily traced in special tests, and may be carefully checked in the field.

These symptoms, experts annouce, are as follows:

Nitrogen deficiency.—Plant colour becomes light green, with "firing" of lower leaves.

Phosphoric acid deficiency:—Plant becomes too dark a green.

Potash deficiency.—Disease spots appear at the tips and edges of leaves, which will roll under at the end and turn yellowish in colour.

Magnesium deficiency.—Leaves become light green or white and the edges cup upward; areas around veins tend to retain natural green colour.

Calcium deficiency.—Young bud leaves hook downward at the tips, tending to break at tips or margins.

Shortage of *iron*, *manganese*, *sulphur*, *boron*, or other of the "rarer elements" also causes loss of quality. For years attention was centered upon supplying the growing tobacco plant with the three primary plant foods—nitrogen, phosphoric acid, and potash—but it has recently been proved that the "extra plant foods" are as necessary to quality growth, though in smaller quantities, as the staple foods, the article says.

YOUR BANANAS WILL SUPPLY THEIR OWN MANURE
WITH THE HELP OF **ADCO**

Turns waste vegetation into rich manure.

ADCO hastens decomposition of vegetation and greatly improves its fertilising values. ADCO manure resembles pen manure in increasing humus, but is richer. It has proved its value in the hottest, driest and most exacting climates.

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Headquarters for all Fertilizers.

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BOX SHOOKS.
FLORIDA PATTERN.

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L. deCORDOVA, Manager.

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The Best Feed
For Every Need

Poultry:

From 1 to 6 or 7 Weeks old
PIONEER CHICK MASH
PIONEER CHICK SCRATCH

From 6 or 7 Weeks to 4½ or 5 Months
PIONEER GROWING MASH
PIONEER DEVELOPING SCRATCH

From 4½ or 5 Months on
For Egg Production
PIONEER LAYING MASH
PIONEER SENIOR SCRATCH

For Table Use Broilers and Capons
Feed same as above but use PIONEER BATTERY Chick Mash in place of Pioneer Chick Mash and PIONEER FATTENING MASH in place of Pioneer Growing Mash and Pioneer Laying Mash

Turkeys:

From 1 to 6 Weeks old
Pioneer TURKEY Starter

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Pioneer TURKEY Grower

Pigeons:

Pioneer PIGEON FOOD

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WHOLESALE FROM *Adolph Levy & Bro.*

POULTRY NOTES.

We would call attention to the fact that we are now stocking poultry vaccines as preventatives against fowl pox, usually locally termed yaws, and against roup and its kindred complaints, bronchitis, typhoid and fowl cholera.

We are also stocking and selling at very cheap rates, for the benefit of poultry keepers, Kamala Nicotine worm capsules for both adult and non-adult fowls, which should prove of great assistance to chicken rearers. There seems always to be an age in the chick's life, somewhere between the eighth and the thirteenth week, when some of these diseases appear and the mortality reaches such a high percentage as to be most discouraging. In fact it may be said that the profit on poultry depends to a great extent on the efficiency of the poultry keeper in reducing his mortality figures to within reasonable limits.

These preventive remedies, which for the first time are now available at reasonable costs and for prompt delivery, should be of great assistance in reducing mortality in poultry, and it is hoped that poultry keepers will avail themselves of this additional facility afforded by their Society.

Worming of adult poultry should be done each year just before the moulting period. At this period cleansing your fowls, internally for parasites and externally for lice gives them a fair chance for getting through their moult rapidly and building up resistance to disease and getting into fit condition for producing early winter eggs which are the high-priced eggs. The beneficial effect continues through the entire succeeding egg-producing season and so must favourable affect, the breeding value of the eggs, increasing fertility and the liveability of the chick.

Maintaining the Productivity of the Flock.

The permanent success of any poultry venture is primarily based on breeding methods which will maintain if not improve the productivity of the flock. Nowadays, more than ever, when prices are lower than they have been, this feature of the poultry farm is so important that any wrong methods adopted or carelessness creeping into breeding methods must spell disaster to the financial results of the poultry farm.

If we were to be asked what was the most important single element in maintaining productivity we would certainly answer the trap nest.

The trap nest is the acid test of the pullet and no pullet that has not passed the test and arrived at the standard desired should be used as a breeder.

Of course having passed the trap nest test does not always mean the pullet will make an efficient breeder. There are other necessary qualifications, and we name them in order of merit,—such as: Vigor, Breed Type, Egg Size, and quality and fertility, all of which are necessary qualifications of the good breeder, but the trap nest which will prove the pullet a layer of good eggs of sufficient quantity for profit is the first quality to be made sure of. After all these qualifications are found there is still the last and final test, after which the hen should be retained permanently as a breeder, and that is the progeny test. This is her ability to transmit to her pullets the ability and better yet an improved ability to produce eggs in quantity and of quality.

The importance of this latter quality cannot be over-estimated.

These facts add considerably to the value of progeny tested breeders and these breeders should be retained as long as they remain healthy and vigorous. It enables us to breed with a degree of certainty which we can have under no other circumstances.

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APPLY TO
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S. C. White Leghorn. S. C. Rhode Island Red. S. C. Plymouth Rocks.
HATCHING EGGS. DAY OLD CHICKS. STARTED CHICKS.
MATED HENS. COCKERELS AND PULLETS ALL AGES.
Six years of selection behind all our stock.

ALBERT E. DREW, PROPRIETOR.

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ENGLISH MIRRORS

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All ¼" thick with 1" bevelled edges
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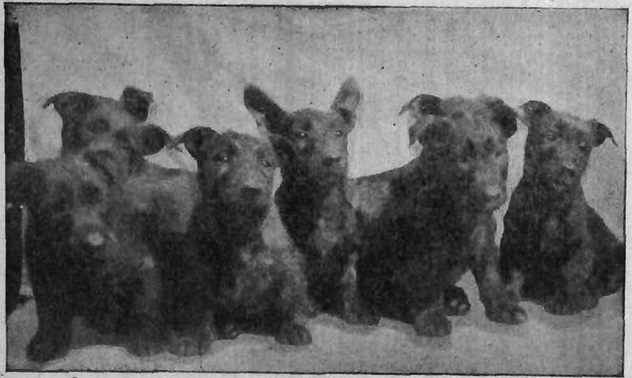

Your dog is the most faithful friend you will ever have.
Treat him kindly and feed him well.

(Extract from the Allahabad Farmer, May, 1934.)

HOW TO THINK STRAIGHT.

It is a Rare Habit, Says a Columbia Psychologist, Who Gives a Test For Thinking and Rules to Keep it Straight.

By Marjorie Van de Water.

Do you think scientifically?

Most people do not, says Dr. Victor H. Noll, of Teachers' College, which is part of Columbia University.

If people did think scientifically, the depression could never have occurred, and many of our social ills could not exist.

"Individuals who are in the habit of thinking 'straight' do not invest in enterprises of which they know little or nothing," Dr. Noll declares. They do not mortgage their homes in order to buy expensive luxuries or get rich overnight. Nor do they look down on their friends and acquaintances who refuse to do these things.

"We still spend millions of dollars annually on worthless or positively harmful nostrums -- beauty aids and quack remedies. We buy almanacs that predict the weather for a year in advance. We judge a man by his facial characteristics; we vote for or against him because of his clothes, or his religion, or his wife's personality. We still have mediums, soothsayers, phrenologist, palmists, mind readers, and astrologers patronized and supported by persons in all walks of life."

Do you think scientifically?

Fundamental Habits.

In order to develop a scientific attitude, you must develop six fundamental habits of thinking, Dr. Noll says. Look the list over and see how many of these habits you have developed in yourself.

1. Habit of accuracy.
2. Habit of intellectual honesty.
3. Habit of open-mindedness.
4. Habit of suspended judgment.
5. Habit of looking for true cause and effect relationships.
6. Habit of criticism, including self-criticism.

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Christmas and New Year Cards. Collins' 1935 Pocket and Desk Diaries.

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BRANCH NOTES.

All Reports received are acknowledged in this section of the Journal. This month we have only been able to put in print Notes from Branches who have not yet had a publication this year.

Branch Secretaries should **write on one side of the paper only.**

[Ed.

ST. ANN: Brittonville.—Meeting 21st November. There were six members and Instructor C. V. Atkinson present. Delegates to the Half-Yearly Meeting of the St. Ann Branches Associated gave their reports which were much appreicated. The Instructor, President and Secretary made suggestions and discussed methods of augmenting the membership of the Branch. Authorised Persons reported all correct. Meeting adjourned with the singing of the King.

Claremont P.O. A. THOMAS, Secretary.

WESTMORELAND: Beeston Spring.—Meeting held 23rd November. Present: 2nd Vice-President (presiding). Instructor Wray, 13 members and 2 visitors. The meeting placed on record its deep regret at the death of the wife of the President, and the Secretary was directed to write a letter of sympathy to him. Consequent on the Secretary's question regarding the membership of the Branch, Messrs. Monteith, Munroe and Lemonte showed vividly how the Branch could be kept alive and progressive. The Instructor in his address, for which he was accorded a hearty vote of thanks, mentioned that no facts were available in connection with the use of the sunflower, also that apiarists should communicate immediately with the Secretary of the Parent Society the moment "Foul Brood" was suspected. He handled "How to make money" in a masterly way, and impressed on the people that they should take up coffee cultivation, try to help themselves and not to put all their eggs in one basket. Routine matters were dealt with, and a most enjoyable meeting terminated with the singing of the National Anthem.

Beeston Spring P.O. C. G. SIMMS, Secretary.

Cairn Curran.—Meeting 9th November. Present: Mr. C. O. Waldrow, President and eighteen members. The President gave an encouraging address on coffee and urged on every member to plant a square chain. The bad state of the roads was discussed and on the suggestion of the President, it was agreed to place this matter before the Westmoreland Branches Associated at their next meeting. A useful discussion in which every member took part took place on the lack of interest displayed by the members of the Branch and the inhabitants of the district in matters pertaining to agriculture which is for their own good and benefit. It was decided to make Monday 12th November an Agricultural Day when various members would visit the districts with a view of increasing the membership of the Branch. Report to be made at a special meeting of the Branch on the 16th November. Authorized Persons present reported O.K. Mr. Alfred Williams was nominated an Authorized Person. A few other matters received attention, and the meeting terminated with the National Anthem.

Darliston P.O. JAS. A. PALMER, Secretary.

Darliston.—Meeting 16th November. Present were: Mr. C. J. Stewart, President, Mr. W. D. Marr, Instructor and several other members. Correspondence including a letter from Mr. L. L. Carrington, Agricultural Officer, regarding preparation of land for the planting of grapefruit was dealt with. Mr. Marr notified members that he would be inspecting the hills made for the planting of the grapefruits ordered, on 21st November. Secretary was instructed to get a supply of 8 bags of canes P.O.J. 2878 from the Department of Agriculture. Secretary was instructed to apply to Parent Society for a supply of equipment for the Show to be held on 24th May, 1935. Three Authorized Persons present reported "All correct." The Instructor's lecture on the planting of grapefruit was accompanied by an ocular demonstration on Miss Mennell's plot. He was thanked. The singing of the National Anthem terminated the meeting.

Darliston P.O. A. A. McDONALD, Secretary.

Holly Hill.—Meeting held 19th October. Present: E. A. Gunter, President and 6 members. The President read an article from the July Journal of a chain square plot of Tomato that was planted at Mile Gully in Manchester which brought a yield of 4.000 lbs. said same was well attended by manuring and spraying. He mentioned the intention of the Police Sergeant from Whithorn to visit the next Branch Meeting for the purpose of

lecturing the Authorized Persons. The President advised members to make the best use of the Instructor who was ready and willing to serve everyone. The Secretary spoke about the proposed Darliston Show. This was followed by the Roll Call and the National Anthem which brought the meeting to a close.

Darliston P.O. F. J. COOKE, Secretary.

ST. MARY: Carron Hall.—Meeting 7th November. Present: Rev. Jas. MacNee, President, Instructor Mr. L. A. M. B. Coke, and fourteen other members besides a goodly number of students from the Continuation School. Meeting attended by the President who recently returned from furlough. In his remarks, he referred to what he gathered from abroad re the marketing of our produce. He was of opinion that owing to keen competition from other countries, we would be having a very difficult task in receiving good prices for our produce. He urged on members the necessity of paying strict attention to the instructions given by the Instructors from time to time. Report of Authorized Persons was given. Mr. Benjamin Edwards, was nominated an Authorized Person. Re the Agricultural Show, the Branch decided to co-operate as much as possible. Report re timber seedlings was given. The selling of bananas by weight was strongly discussed and deferred. At this juncture, the Instructor gave some very helpful remarks. He dealt chiefly with manure and the important part it plays in the yield of the soil. The National Anthem brought meeting to a close.

Carron Hall P.O. H. A. WHYTE, Acting Secretary.

Mt. Regale.—Meeting November 2nd. The Instructor, Mr. Chas. D. V. Henderson, was in this district that day. He supervised trenches he had previously lined on holdings. In these fields visited, he advised the planting of leguminous cover crops which he said is particularly useful in preventing washing on hillsides as well as adding nitrogen and organic matter to the soil. He encouraged the rearing of small animals—goats, rabbits, etc. The manure from these animals should be stored and thrown in the vegetable gardens. At the meeting, he dealt chiefly with PanamaDiesease—the one-root treatment. The meeting was brought to a close in the usual way.

Mt. Regale P.O. T. H. HANNAM, Secretary.

Wood Park.—Meeting 21st November. Present: Mr. W. S. Robinson, President, nine other members and two visitors. Letter from Parent Society re treatment of Panama Disease was read and noted. Messrs. W. S. Robinson, R. D. Palmer, C. O. Wellington and A. E. T. Vermont were elected delegates to the meeting of the St. Mary Branches Associated. Resolution proposing amendment of the Rules of the Society to be submitted for discussion. A discussion took place on the advisability of buying bananas by weight or not. Report of Authorised Persons was taken. The meeting closed with the National Anthem.

Pembroke Hall P.O. C. L. A. STEWART, Secretary.

ST. CATHERINE.

Content.—Meeting 28th November. Among the many workers present were O. P. Martin, Esq., and Mr. M. M. Greene, President. A delegate was elected to attend the Half-Yearly General Meeting. Delegates from the Half-Yearly Meeting of the St. Catherine Branches Associated gave their reports and were heartily thanked. Four Authorized Persons reported all correct. Reports from the Women's Auxiliary and Juveniles were presented. Instructor Martin spoke on the proper growing and handling of Citrus for which he was thanked. The meeting terminated with the singing of the National Anthem.

Bellas Gate P.O. G. G. PLANTER, Reporting Secretary.

GEORGE & BRANDAY,
KINGSTON
Have been Buyers of Agricultural Produce,
COFFEE, COCOA, PIMENTO, ETC., HARDWOOD, LIGNUMVITAE, EBONY, SATINWOOD, DYEWOODS, LOGWOOD, FUSTIC, GOATSKINS, CATTLE HIDES, BITTERWOOD, SARSAPARILLA
FOR OVER 50 YEARS.
CORRESPONDENCE INVITED.

Ewarton.—Meeting 1st November. Present: Mr. W. C. Irving, presiding, Hon. T. J. Cawley and Mr. T. P. V. McDaniel, members of the Board of Management of the J.A.S., Mr. Glaister Baxter, Secretary, Mr. O. P. Martin, Instructor; Mr. C. S. Byles, Assistant Instructor; Mr. C. Caryll, J.P.; Messrs. B. T. Atkinson and F. A. Cooke, Vice-Presidents; several other members and many visitors. The President introduced the gentlemen on the platform and extended to them a hearty welcome. Delegates were appointed to attend the meeting of the Associated Branches and a committee was appointed to draft resolutions. The Hon. T. J. Cawley said he attended the meeting to encourage the people to take more interest in their agricultural affairs. He pointed out that we should adopt new methods in agriculture to enable us to compete with other countries. Our needs in connection with agriculture were co-operation, land settlement and agricultural credit. Mr. McDaniel said that the people of the district should get together and put forward their views for the development of agriculture. With regard to citrus cultivation we should entirely revise our methods. For years birds had been doing the planting for many of us. Mr. Baxter in a comprehencive address said that there was no better organization than the Agricultural Society. In addition to the journals, there was a library in connection with the Society from which the Branches could borrow books on agriculture. There were modern methods in the production of many crops and these should be learned. By co-operation the Branch Societies could do much. Mr Byles spoke on the handling of citrus fruits and care of the trees. Mr. Caryll who has had extensive experience in handling and packing of citrus, ably supplemented Mr. Byles' remarks. Mr. Martin made a few remarks in connection with the citrus programme he had started in the district. A vote of thanks was conveyed to the speakers and the meeting adjourned.

Ewarton P.O. W. B. Leslie,
Secretary.

Hampshire.—Meeting 30.10.34. Present: Mr. V. P. DaCosta, President, thirteen other members and a large turnout of visitors. The unveiling of the new lamp and a Variety Concert to take place at the next meeting. Delegates to represent the Branch at the meeting of the St. Catherine Branches Associated were chosen and resolutions passed to be forwarded. Miss E. M. Brodber, Mr. S. Collins, Messrs. C. C. Bryan, E. L. Johnson and E. A. L. Rowe were among those who contributed to the concert programme. The repeated absence of Instructor and Assistant Instructor was strongly remarked on. In the usual manner, the meeting was concluded.

Riversdale P.O. E. A. L. Rowe,
Reporting Secretary.

Princessfield.—Meeting 26th November. There were many persons present including the President and Instructor C. S. Byles. After a welcome to the Instructor, a general discussion took place with reference to the status of the Branch as well as the lack of interest of its members. It was decided that members should immediately pay their dues and the affiliation fee for the current year be at once forwarded to the Parent Society. It was further decided that some efforts should be made to improve the functioning of the Branch and it was also decided that an invitation be extended to the 1st Vice-President, the Secretary of the Parent Body and Mr. V. P. McDaniel of the Board of Management, respectfully asking them to visit the Branch during the present month and suggesting during the week ending 22nd as a favourable period, the day and time to be arranged by themselves and notification given to the Branch.

Bog Walk P.O. P. E. C. Graham,
Secretary.

PORTLAND.

Drapers.—Meeting 2nd November. There were present Mr. R. Bailey, President; Mr. G. R. Graham, Instructor, 8 members, 5 visitors and 30 pupils of the school. A Juvenile Branch of the Society was formed. The Instructor spoke on the 'black borer beetle.' The pupils rendered a song. The meeting terminated with the singing of the National Anthem.

Port Antonio P.O. (Miss) M. P. Duncan,
Secretary.

Balcarres.—Meeting held 28th November. Present: Mr. P. E. Nesbitt, President, Instructor D. A. Jones, 12 other members and 4 visitors, two of whom subsequently became members. Among the matters arising from the minutes, Mr. J. O. Baugh, who was deputed to interview Authorised Person, Isaac Leveridge, stated that he had heard nothing definite from the party. It was recommended that the Authorized Person's name be struck off the list. "A. P." Sullivan reported an arrest Two new members were enrolled. Instructor Jones congratulated the Branch on the increase of membership, etc. He urged agricultural education. He congratulated Mr. T. T. Barnes, whose holding he visited earlier in the day, on the systematic and intelligent way in which he

pruned, and on the general care of his holding. He advised intensive cultivation. He advised the breeding of Berkshire pigs as a means of establishing the Ham and Bacon Industry in Jamaica. During the earlier part of the day, he visited and did some budding on the holdings of Mr. J. O. Bough, T. T. Barnes and F. Eml. Nesbitt. A vote of thanks was conveyed to the Instructor. After other matters were dealt with, and the meeting terminated as usual.

Balcarres P.O. (Mrs.) ADA V. NESBITT,
Secretary.

Regale.—Meeting November 27.—Present were A. W. Campbell, President, thirteen members with a few visitors, one of whom became a member. Correspondence was read which led to the election of a delegate to go to the Half-Yearly Meeting in Kingston; also the drafting of one resolution. One Authorized Person was present and reported all correct. There was a short dissussion on the Xmas Fete. After some interesting remarks by the President, the meeting terminated with the singing of the National Anthem.

Spring Hill P.O. (Miss) G. I. CAMPBELL,
Assistant Secretary.

Belle Vue.—Meeting November 28. Present: Mr. J. H. Somers, President; Instructor G. R. Graham, 6 senior members and 22 junior members. Arising out of the minutes, the Secretary reported that the Guava River Free Labour Work was progressing but advised members to persevere till work was completed. It was decided to write Authorized Persons re their irregularity in attendance at Branch Meetings. A resolution re the treatment of yaws was discussed and passed. The Instructor spoke of the big agricultural drive for increase in membership. He pointed out the reasons therefor and benefits to be derived. The Instructor was thanked. The National Anthem terminated the meeting.

Fellowship P.O. VICTOR V. BROWN,
Secretary.

TRELAWNY: Deeside.—Meeting 7th November. Present: twelve regular members, Instructor M. N. Thompson and ten visitors. The President John Haye, occupied the chair. The President expressed regret, that owing to the October meeting having been washed out, it was not possible to meet to say "good bye" to Instructor Kelly who had been transferred. The new Instructor was introduced and welcomed. Arising out of the minutes, the following matters were dealt with (1) Billy Goat. The President stated that the animal died within twenty-four hours after its arrival. The Secretary gave a very exhaustive explanation of all transactions in connection with the goat. The Secretary was thanked for the interest he took in the matter. (2) Roads. The work that was done on the main road was mentioned also the improvements effected on Doman Pasture Street. (3) The caretakers reported that the Giant Plantain suckers were growing splendidly. In his address, the Instructor emphasized the importance of field sanitation to avoid borers. He discussed the growth and spread of the borers and how to eradicate them by trapping. Ssmples of the pests were displayed. He next spoke on coffee cultivation—growth and care of trees, picking of berries, proper curing and sale. The Instructor wound up his address with a demonstration on the Gordon Coffee Pulper." The meeting was brought to a close with the singing of the National Anthem.

Deeside P.O. E. A. MORLE.
Secretary.

ST. ELIZABETH: Malvern.—Meeting 26th October. Present: Rev. S. C. Ashton, President; Mr. H. W. Lynch, Instructor, fourteen members and one visitor. A hearty welcome was extended to the President who had been off the Island on holiday. Four delegates, Messrs. T. M. Fagan, R. Davis, D. Finlay and E. Jones were elected to represent the Branch at the Half-Yearly Meeting of the S.E.B.A. to be held in November. The Instructor advised members to encourage others to join the Society, and showed the benefits derived from a healthy co-operation. He also gave detailed hints on the reaping and curing of coffee. Matters relative to the All St. Elizabeth Show to be held at Gilnock on the 1st January, 1935, were discussed. Mr. R. S. Salmon addressed the meeting on Co-operation. The meeting adjourned after the singing of the National Anthem.

Malvern P.O. (Miss) E. I. BLAKE,
Secretary.

MANCHESTER: Pike.—Meeting November 14. Owing to the weather, the attendance was poor, consisting of Instructor J. A. Graham, Messrs. John Foster, President and five other members. The President on behalf of the Board extended to the new Instructor a cordial welcome. Arising out of the minutes, the goat matter was dealt with. Correspondence was dealt with and arising therefrom: Messrs. J. Foster, J. Bourne, J Palmer, I. E. R. Green and Miss R. L. Campbell were elected delegates to the meeting of the Manchester Branches Associated. One Authorized Person reported one arrest. One

Authorized Person tendered his resignation as he had become a dealer in Agricultural Produce. John Bourne was nominated to take his place. The Instructor thanked the members for their warm welcome which he said he appreciated very much. He went on to stress the need for intensive cultivation and showed how the small settlers' goats, rabbits and fowls can be used to restore plant food in the soil resulting in continuous good crops. He also pressed for increased membership. He received the thanks of the meeting which then rose to the singing of the National Anthem.

Coleyville P.O. I. E. R. Green,
Secretary.

CLARENDON: Pleasant Valley. Meeting 20th November with Mr. Alfred Haynes, 2nd Vice-President presiding. As matters arising from the minutes, Mr. Wilburn Sweeney who is an Authorized Person was elected as valuator. The Authorized Persons reported "All correct." The Delegate to the Half-Yearly meeting of the C.B.A. was accorded a vote of thanks after presenting her report. Apologies for absence were received. The Roll showed 14 members present. Meeting terminated with the National Anthem.

May Pen P.O. (Mrs.) A. A. Flyter,
Secretary.

ST. ANDREW: Rock Hall—Meeting 5th November. Owing to the unfavourable state of the weather, 3 successive meetings were abandoned. Present: Instructor A. P. Hanson and eleven members. There was a lengthy discussion on the school question, and it was decided that a resolution be sent on the subject as also one on the widening of the Red Hills Road leading on to "Rock Hall." Delegates were elected for the Half-Yearly Meeting of the St. Andrew Branches Associated. It was decided that a Concert be held on the 9th December. One Authorized Person reported all correct. The singing of the National Anthem brought an enjoyable meeting to its close. The Benediction followed.

Red Hills P.O. (Mrs.) Bertha Heslope,
Secretary.

Westphalia.—Meeting held November 24. Present: 10 members, including the President, Mr. Azariah Campbell. The members expressed regret at not seeing the Instructor since January. The post of Assistant Secretary was filled. Authorized Person, A. Campbell reported on work done. The meeting closed with the National Anthem.

Mavis Bank P.O. U. A. Welsh,
Secretary.

ST. JAMES: Salt Spring.—Meeting November 14 Present: Mr. G. W. Anglin, presiding; Instructor W. D. Marr, Plant Disease Inspector McCardy and 13 other members. As matters arising out of the minutes, the Secretary was instructed to obtain funds from those members desirous of purchasing a Saanen Ram. Authorized Persons reported. Followging a discussion on the advisability of obtaining a Demonstration Plot for the Branch, Instructor Marr advised the purchase of seedlings from the Director of Agriculture, unless the plot could be recognized as being truly representative in every respect. Mr. McCardy spoke on the Law governing the transportation of suckers from parish to parish and encouraged the reporting of every suspected case of Panama Disease Bud-rot he said was an "air-borne" disease hence the inadvisability of replanting infected areas at present. Water Question for the district was discussed and the National Anthem brought the meeting to a close.

Montego Bay P.O. Cleve E. Dillion,
Secretary.

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Other Reports Received.

Branch.	Date of Meeting.	Attendance.	Business.	Secretary.
Portland.				
Belvedere	16.11.34	6	Saanen Ram. Loan Bank and Land Settlement.	L. C. Blair.
Craigmill	6.11.34	17	Election of Delegate to Parish Association Meeting. Citrus Industry. Address by Instructor Jones.	(Rev.) T. Lawrence.
Moore Town	6.11.34	25	Small Stock. Authorised Persons. Address by Instructor Graham.	R. S. Anglin.
St. Catherine.				
Brown's Hall	6.11.34	.	Water Supply. Address by Instructor Martin.	M. Hart.
Bellas Gate	12.11.34	44	Finances. Appointment of Delegates to Parish Association Meeting. Address by Instructor Martin.	A. A. McCurdy.
Victoria	22.11.34	..	Report of Parish Association Meeting. Roads. Citrus. Appointment of Delegate for Half-Yearly General Meeting.	(Miss) M. L. Burrell.
Content	31.10.34	.	Address by Instructor Byles. Grindstone. Delegates for Half-Yearly Meeting. Juvenile Branch	G. G. Planter.
Buxton Town	21.11.34	13	Road. Election of Delegate for Half-Yearly Meeting. Report of Parish Association Meeting. Address by Instructor Byles.	C. A. Leslie.
Phillipsburgh	12.11.34	12	Water Supply. Authorszed Persons.	C. A. Leslie.
O'Meally	29.11.34	21	Water Supply. Banana Festival. Roads. Report of Parish Association Meeting. Appointment of Delegate to General Meeting.	A. A. Henry.
Clarendon.				
Beckford Kraal	5.11.34	13	Citrus. Authorised Persons. Clarendon Show. Address by Instruetor Shirley.	T. B. Reeves.
Tweedside	27.11.34		Juvenile Branch. Routine matters. Address by Instructor J. A. Graham.	E. W. Boyd.
St. Mary.				
Camberwell	16.11.34	5	Show. Correspondence. Address by Instructor Henderson.	A. E. L. Giscombe.
Epsom	7.10.34	10	Routine matters. Discussion on Coffee. Address by Instructor Henderson.	F. A. Edwards.
Hampstead	24.11.34	7	Juvenile Branch. Citrus. Appointment of Delegate for General Meeting.	H. G. Davis.
Marlborough	27.11.34	13	Appointment of Delegates for Half-Yearly Meetings. Authorised Persons. Address by Instructor Henderson.	D. A. Ford.
Oxford	22.11.34		Election of Delegates to Parish Association Meeting. Authorised Persons. Water Supply.	(Mrs.) R. A. Thomas.

Other Reports Received, contd.

Branch.	Date of Meeting.	Attendance.	Business.	Secretary.
Central St. Mary	1.11.34	12	Plans re show. Appointment of Delegate to Parish Association Meeting. Address by Instructor Henderson.	C. L. Williams.
St. Thomas.				
Cedar Valley ..	19.113.4	10	Election of Delegates to Parish Association Meeting. Address by Instructor McLaren.	H. H. Watson.
Thornton ...	13.11.34	..	Election of Delegates to meeting of St. Thomas Branches Associated. Addresses by Mr. James and Instructor McLaren.	N. A. Patterson.
Manchester.				
Ebenezer ..	22.11.34	14	Authorised Persons. Small Stock. Election of Delegates for Half-Yearly Meetings.	L. Fletcher.
Mile Gully ..	26 10.34	.	Address by Instructor Darby. Spray Pump. Citrus; Over-look beans. Address by Instructor Darby.	T. A. Morris.
Mile Gully ..	23.11.34	..	New Citrus Regulations. Address by Mr. A. F. Thelwell.	T. A. Morris.
New Green ..	1.11.34	16	Citrus. Road. Coffee. Appointment of Delegates to Meeting of M.B.A. Address by Instructor Darby.	E. A. Grant.
Old England ..	27.11.34	10	Citrus. Authorised Persons	C. P. Watson.
St. Elizabeth.				
Ginger Hill (Juvenile Branch) ..	15.11.34	41	Debate. Address by Teacher W. A. James.	L. D. Barracks.
Springfield ...	2.11.34	33	Road. Delegates for St. Elizabeth Branches Associated. Addresses by Mr. Maxwell and Instructor Lynch.	J. A. Woodstock.
Pedro Plains ..	2.11.34	8	Juvenile Branch. Election of Delegates to St. Elizabeth Branches Associated.	I. S. Millard.
St. James.				
Roehampton ..	10.11.34.	8	Road. Authorised Persons. Address by Instructor Marr.	J. A. Rhoden
Trelawny.				
Spring Garden	8.11.34	..	Routine matters. Authorized Persons.	L. Coy.
Wakefield ..	6.11.34	..	Authorsied Persons. Coffee. Address by Instructor Thompson.	E. S. Bliss.
Wait-a-Bit ..	14.11.34	.	Coffee-growing Competition Address by Instructor Thompson.	I. L. Rogers.
Waldensia ..	5.11.34	34	Seed Potatoes. Savings Bank. Police Station. Authorised Persons. Justice of the Peace. Addresses by Messrs. J. A. Hines and C. C. Lee.	C. C. Lee
Sawyers ..	26.11.34	.	Routine matters. Social	

JAMAICA AGRICULTURAL SOCIETY.

CURRENT LITERATURE.

The following shows list of publications reaching the Society. These are available for loan to members on application.

QUARTERLY.

Phillipine Journal of Agriculture.

MONTHLY.

Journal Ministry of Agriculture.
British Trade Journal.
Tropical Life.
United Empire.
British Empire Production and Export.
Crown Colonist.
Canada W. I. Magazine.
Proceedings of Agricultural, Society of Trinidad and Tobago.
Tropical Agriculturist (Ceylon)
Agriculture and Livestock in India.
Tropical Agriculture (Trinidad)
Journal Jamaica Chamber of Commerce.
Madras Journal of co-operation.
Canadian Gazette.
West Indian Critic.
Agricultural Gazette of N. S. Wales.
Queensland Agricultural Journal.
Australian Sugar Journal.
Journal Dept. of Agriculture S. Australia.
Gleanings in Bee Culture.
Farm Journal.
Revista de Agricultura y Commercia.
Phillipine Agriculturist.
Brooklyn Botanic Garden Record.
Wilson Bulletin.
Journal International Review of Agriculture, Rome.
Bulletin Mis. Information.
Empire Journal of Experimental Agriculture.
Journal of the Red Poll Breed.
Allahabad Farmer.
Agricultural Journal of British Guiana.
Florida Grower.
National Geographic Magazine.
Poultry Health Messenger.
Annals Missouri Botanical Garden.
U. S. S. R. in construction.

FORTNIGHTLY.

West India Committee Circular.
Hoard's Dairyman.

WEEKLY.

Fruitgrower.
The Scottish Farmer.
The Smallholder.
The Feathered World.
The Farmer and Stock Breeder.
Seed Trade News.
Farm Field and Fireside.

AGRICULTURAL LIBRARY,

AGRICULTURE—(General)

An Introduction to Tropical Soils	Vageler	Soil, The (2)	Hall
Agriculture in the Tropics	Willis	Soil Conditions and Plant Growth	Russell
Agriculture for Beginners	Burkett	Southern Agriculture	Earle
Book of the Farm—Vols. 1-5	Stephens	Transactions of the Highland Agricultural Society (25)	
Complete Grazier, The	Fream		
Catechism of Agricultural Chemistry	Johnson	Tropical Agriculture	Nicholls
		Tropical Crops (2)	Barrett
Chemistry of the Farm	Warrington	Productive Soils	Weir
Dry Farming (2)	Widstoe	Soils and How to Treat Them	Brooks
Farmer's Encyclopedia of Agriculture, The	Wilcox and Smith	Means and Methods of Agricultural Education	Leake
Feeding of Crops and Stock, The (2)	Hall	Agricultural Development of Arid and Semi Arid Regions	Leppan
Fream's Elements of Agriculture	Ainsworth-Davis	Use of Water in Irrigation	Fortier
		Tropical Agriculture	Imp. College lege of Tropical Agriculture
Irrigation Farming	Wilcox		
Land Draining	Miles		
Natural History of the Farm	Needham		
Nature Teaching	Watts	Farm Crops	Burkett

Nature Study Leaflets	Cornell	Pruning	Dept. of Agri. New S. Wales
Physics of Agriculture	King		
Scientific Examination of Soils	Wahnscaffe		

APICULTURE.

A. B. C. & X. Y. Z. of Bee Culture	Root	How to Keep Bees	Comstock
		Practical Beekeeping	Hopkins
Beekeeping	Phillips	Starting Right with Bees	Rowe

BANANAS.

Banana, The	Fawcett	Cult of Bananas in Jamaica	Levy

BOTANY.

Agricultural Botany	Percival	Treasury of Botany— Parts 1 and 2	Lindley & Moore

CITRUS.

Citrus Fruits and their Culture	Hume	Cultivation of Citrus Fruits (1926) 3	Hume
Citrus Diseases and Control	Fawcett & Lee	Lime Cultivation in the West Indies	Watts
Citrus Products— Parts 1 and 2	Field	Citrus Fruits	Coit
	Museum of Natural History	Culture of Orange and Allied Fruits (2)	Clarke Powell

COCOA.

Cacao, Manual on Cultivation and Curing (3)	Hart	Cacao, A Treatise on	Oliveri
		Cocoa,	Van Hall
Cacao, The (2)	Hart	Cocoa	Wright
Cacao, Culture in the West Indies	Smith	Cocoa and Chocolate (2)	Knapp
		Grafting of Cacao	Jones
Cacao, Fermentation of	Hamel-Smith	Manufacture of Chocolate	Zipperer
		Cacao (2nd Edition)	Van Hall

COCONUTS.

Coconut Palm, The	Sampson	Cult of the Coconut in Jamaica	Wates
Coconuts, Consuls of the East	Smith	Practical Guide to Coconut Planting, A	Munro and Brown
Coconut, The	Copeland		

COFFEE.

Cultivation and Preparation of Coffee for the Market (3)	Jotapeau	Curing of Coffee in Jamaica	
		Coffee, The Beverage	Foot

CORN.

Book of Corn, The	Myrick	Indian Corn Culture	Plumb

COTTON.

A.B.C. of Cotton Planting (2) Imperial Dept. of Agriculture

ENTOMOLOGY.

Diseases of Crop Plants in Lesser Antilles	Nowell	Insecticides, Fungicides and Weedkillers	Bourcart
Economic Entomology	Smith	Natural History of Ants	Reaumur
Elementary Lessons on Insects	Needham	The House Fly	Br. Museum
Household Pests and Household Remedies	Boetter	Mosquitoes	Br. Museum
Household Insects and Their Control	Gibson & Twinn	The Bed Bug	do.
Injurious Insects	O'Kane	Furniture Beetles	do.
Insect Pests of the Lesser Antilles	Ballou	The Cockroach	do.
		Economic Entomology of the West Indies, An	Geo. N. Wolcott

FODDERS.

Lucerne Culture in S. Africa	Leppan	Saccharine Feeds and Feeding	West Mills Co.
Permanent and Temporary Pastures	Sutton		

FORRESTRY.

Men of the Trees	Baker	Sylriculture in the Tropics	Brown

FRUITS.

California Fruits—3rd and 7th Editions	Wickson	Mango, The	Woodrow
Fruit Growing in S. Africa	Davis	Manual of Tropical and Sub-Tropical Fruits	Poppenoe
Mango, The	Webster		

GARDENING.

Chemistry of the Garden	Cousins	Southern Gardener's Practical Manual	Newman
Firminger's Gardening in India	Burns	The Nursery Book	Bailey
Gardening for Profit	Henderson	Tomato Culture	Tracy
Garden Making	Bailey	Sub-Tropical Vegetable Gardening	Rolf
Gardening in the Tropics	Williams	Commercial Cucumber Culture	Craig
Handbook of Tropical Gardening and Planting	McMillan	Principles of Vegetable Gardening	Bailey
Productive Vegetable Growing	Lloyd	*The Vegetable Garden*	*Robinson*
School Gardens in Jamaica	*Probyn*		

HORTICULTURE.

Flora of Jamaica	Fawcett	Primer of Horticulture	Wright
Flora Br. West Indian Islands	Griesbach	Treatise on Physiology of Plants, A	Soraeur
Horticulturist's Rule Book, The	Bailey		

HOUSEHOLD.

Home Pork Making (2)	Fulton	Harmsworths Household Encyclopedia (6 Vols)	
Recipes for preserving Fruit, Vegetables and Meat	Wagner		

LEATHER.

Leather & Bootmaking (2)	Claxton	Hides and Skins	Arnold
Leather Manufacture	Watt		

MANURES.

Fertilizers and Manures	Hall	Use of Fertilizers in Tropical and Sub-tropical Agriculture	Jacob and Coyle
Fertilizer Requirements of Tropical Plants and Soils	Jacob and Coyle	Fertilizers and Soil Improvers	W. Gardner
Fertilizers and Crops	Brooks		

PEAS.

Pease and Pea Culture	Sevey		

POTATO.

A.B.C. of Potato Culture	Terry and Root	Potato Culture	Ramsay
The Potato	Fraser	Potato, The	McIntosh
The Potato	Stuart	Potato, The	Grub and Guilford
Potato Disease in Australia	McAlpine		

POTATO (Sweet.)

Sweet Potato Culture (2)	Fitz		

RUBBER.

Cultivation of Hevea	Cramer	Rubber Cultivation and Preparation	
Hevea Brasiliensis	Wright	Rubber Industry, The (2)	Torrey & Manders

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Cane Sugar	Deer	Sugar—Cane and Beet	Martineau

SERICULTURE.

Cultivation of Silkworms, The	Braine		

TEA.

Pests and Blights of the Tea Plant	Watt and Main		

TOBACCO.

Tobacco Leaf (New Edition)	Killibrew & Myrick	Tobacco Leaf	Killibrew & Myrick
Cultivation and Curing of Tobacco	Morris	Tobacco in S. Africa	Taylor

VANILLA.

All about Vanilla	Ferguson		

MISCELLANEOUS.

British West Indies, The	Aspinall	Year Book B.W.I. 1929, 1930 and 1931, 1932	
Chambers' Concise Gazetteer of the World		Plain and Ornamental Lettering Alphabets for signwriters, etc.	Fooks
Advertiser's Annual and Convention Year Book	(1927 and 1930)	Agricultural Co-operation in England (2)	H. P. Foundation
Proceedings of 3rd International Congress of Tropical Agriculture		Agricultural Co-operation in Ireland (2)	Do.
		Hunger Fighters	deKruf
Food for the Body, Soul and Mind	Baldwin	Making your Own Market	Lord and Delhory
Year Book of Agriculture Coperation in B. E. 1927		Moore's Modern Methods	
Do. Do. 1929 (2)		Agricultural Credit	J. Boyazoglu, D.Sc.
Do. Do. 1930			
Agricultural Co-operation in Soviet Union		A. B. C. Telegraph Code	
		Meetings	Head
Jamaica, Our Present Condition and Crisis		Editorials and Editorial Writing	Neal
Handbook of the West Indies	Aspinall	Empire Stock Taking	Grondona
Ceylon Agricultural Society Year Book		News and Newswriting	Neal
		Jamaica	McLarty

STOCK.

CATTLE

Cattle, Breeds and Management	Houseman	Cowherd, The	

DAIRYING.

Farm Dairying	Rose	Dairying Cattle	Yapp and Nevens
First Lessons in Dairying	Van Norman	Condensed Milk	Miyawaki
Milk and Its Products	Wing	Dairy Farming	Fraser
Modern Dairy Farming	Long	Butter Industry	Hunziker

GOATS.

Book of the Goat, The (2)	Pegler	Milk Goat Dairy	Wickersham
Goat Keeping for Amateurs	Cooper	Goat Keeping for All	Jensen
Modern Milch Goats	Richards		

HORSEKIND

Breeding and Rearing of Jacks, Jennets and Mules (2)	Knight	Practical Horse Shoer, The	Richardson
		Horse Book, The	Johnstone
Light Horses, Breeds and Management	Blew	Horse, The	Youatt

PIGS.

Swine in America	Coburn	Pork Production	Smith
Pig Feeding and Breeding in E. Africa	Prossor	Productive Swine Husbandry	Day

POULTRY.

American Standard of Perfection (Revised)	Derven-stedt	Practical Poultry Farming	Hurd
		Poultry Farming	Hurst
Poultry Keeping as an Industry	Brown	Common Ailments and Diseases of Poultry	Pearce-Gervis
Feathered World Year Book 1926		Fortunes from Eggs	Karswood Co., of Manchester
Poultry Diseases	Kaupp		
Farm Poultry	Watson	Practical Poultry Keeper	Wright

RABBITS.

Management of Rabbits, The	Rayson	Utility Rabit Keeping	Bretton
Rabbit Keeping in West Indies	Barclay		

SHEEP.

Sheep, The	Spooner		

VETERINARY.

Common Sense Dog Doctoring	Spratt's Patent Ld.	Humphrey's Veterinary Manual	
Modern Horse Doctor, The	Dadd	Common Diseases of Farm Animals	Craig
Ydail Verterinary Book			
Home Cow Doctor		Live Stock & Poultry Diseases	Bailey
Diseases of Sheep and Goats prevalent in South Africa	Dairy Assen. Co.	Principles of Veterinary Science	Hadley
	Wm. Cooper & Nephew	Home Doctoring of Animals	Teeney

GENERAL.

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